

# E.N.I.G.M.A.

# 12

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ENIGMA is the journal of the European Numbers Information Gathering and Monitoring Association.

ENIGMA is a non-profit making association of listeners who monitor and gather information on 'Number Stations' and other related radio transmissions. ENIGMA aims to bring together listeners and enthusiasts and provide quality information on subjects not normally available from main-stream publications.

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#### Subscriptions

4 Copies of ENIGMA - are available for £6.00 sterling - includes postage for the UNITED KINGDOM.

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You may pay by Sterling Cash, US Dollars, Eurocheques or American Express cheques ( in Sterling ) or by UK Cheques or Postal Orders payable to ENIGMA.

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#### Contributions

We appreciate all contributions to the newsletter ( including anonymous information). We regret that we are not always able to provide a personal reply but, rest assured, we read and collate all information for present and future use. Questions are answered via our " Letters to ENIGMA " pages. ENIGMA is also a discussion forum and we welcome comments about the newsletter. If you are interested in writing a feature please contact us at the mailing address.

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#### Acknowledgements

Information in ENIGMA may be reproduced, but please mention ENIGMA and if possible the originator of the article, we would appreciate any cuttings in which ENIGMA is mentioned.

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NEXT ISSUE... We aim to publish the next issue of ENIGMA in late JULY 1997.

Contributions would be appreciated by SATURDAY JUNE 14th 1997.

ENIGMA THANKS YOU FOR YOUR SUPPORT

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COVER ISSUE 12 ENIGMA 'Recruitment Special'.

GCHQ Seeks Graduate Mathematicians for code-breaking !  
DIS Seeks Intelligence Officers ! (at Chicksands ?)



Unconfirmed frequencies include; 10452 13440 & 16104. Frequencies previously used include; 4768 17499 18684 19844 20474 & 23411.

E5) COUNTING STATIONS - Mode AM //V5

Still very active in English language.

Following based on reports received since last issue. Special thanks to Peter in SW. Schedules are short lived and prone to sudden changes. // Frequencies shown where known.

MON 07.00	7620/9090	WED 15.00	11213/	FRI 13.00	7547/10528
MON 11.00	8014/	WED 16.00	9070/7473	FRI 14.00	10597/
MON 16.00	9219/11491	WED 17.00	9219/7584	FRI 15.00	8085/
MON 17.00	12197/6891	WED 19.00	6780/8085	FRI 17.00	6780/8125
MON 18.00	6970/	WED 20.00	6780/8085	FRI 19.00	5850
MON 19.00	6780/8085				
MON 20.00	6780/8085			SAT 02.00	5153/
				SAT 07.00	9070/11072
TUE 15.00	7600/10597	THR 16.00	9219/11491	SAT 11.00	8014/10597
TUE 16.00	12170/	THR 17.00	8085/10423	SAT 12.00	7547/10597
TUE 17.00	9219/7584	THR 18.00	6780	SAT 16.00	10529/
TUE 19.00	5850			SAT 17.00	6780/
TUE 21.00	5850/7473			SAT 18.00	6970/
				SAT 20.00	5850/7473
SUN 05.00	9161/	SUN 12.00	8014/10597	SUN 17.00	6780/8125
SUN 07.00	9070/11072	SUN 15.00	8014/11123	SUN 18.00	6970/
SUN 09.00	6970/9070	SUN 16.00	7473/9070	SUN 20.00	7430/

This station also sends test tones and was heard on TUE 29.10 at 09.30 on: 5315/5419/6780/6880/6967/7620/8085/9160/10264/10727/12230. This gives some indication of the size of this network.

On Mon 25.11 the U.S. broadcast station WSHB confirmed that it had moved its European service from 5850 to 5835 kHz due to interference from this particular numbers station.

E6 & E7) ENGLISH MEN '00000' & '000 000' Mode AM //S6 & S7 Families

Traffic levels continue to be high. Due to random frequency usage it is not practical to reproduce all logs. ID's noted however are listed below. See G6 & G7 for further details.

E6) 105 109 139 192 194 204 320 394 409 471 506 548 592 593 628 675  
715 947

E7) 305 319 329 388 419 730 827 843 845 879 915 916

E9) MAGNETIC FIELDS Mode AM //V8

This station is not very reliable, however we suggest you try;

MON 18.00 or 19.00 on 6645 +/-3kHz  
SAT 09.20 on 11290

Modulation level is too low and therefore despite a strong signal the reception is not always readable. See also sister station V8.

10) PHONETIC ALPHABET -NATO Mode AM/SSB

Still very active indeed.E

All information shown below is based on reports received since last issue. Some frequencies share callsigns.

2120 KPA 2270 JSR 2626 ??? 2743 ULX 2844 YHF 2953 ??? 3091 CIO  
3150 PCD 3270 MIW 3415 ART 3495 MIW 3840 YHF 4165 VLB 4270 PCD  
4360 KPA 4463 FTJ 4665 VLB 4780 MIW 4880 ULX 5092 JSR 5170 SYN  
5230 MIW 5437 ART 5530 MIW 5630 KPA 5820 YHF 6270 ULX 6500 PCD  
6600 NDP 6660 CIO 6745 CIO 6840 EZI 7322 FTJ 7445 KPA 7540 JSR  
7605 CIO 7918 YHF 8405 MIW 8465 CIO 8641 MIW 9130 EZI 9270 CIO  
9403 ??? \*\*\*5630 New frequency\*\*\*

10125 CIO 11565 EZI 12950 SYN 13533 EZI 17410 EZI 19715 EZI

Message strings are still very active. Recent ones include; NDP-V  
NDP-5, NDP-Z, NDP-R, NDP-XX ! All noted on 6600 kHz.

E11) "OBLIQUE" Mode AM/SSB //S12//G11//M3

231 is still active and was last heard on FRI at 20.30 4780, moves  
between 3060 4015 4780 & 5050 depending on time of year. Try each  
Friday.

Also noted with a good signal in Finland on FRI at 10.30 calling 321  
on 7840 kHz. Both the above transmissions will have repeats.

All reports of this family very welcome.

5050 752/00  
2400 TUE 27MAY

E12 N N N Mode AM /M2

No changes to this station. Still active with excellent signal in  
Europe at following schedule.

MON 04.00 4573	WED 04.00 4573	THU 04.00 5821	FRI 04.00 4573
MON 21.00 4644	WED 21.00 4644	THU 20.00 5821	FRI 21.00 4644

An unconfirmed report of an NNN transmission in German (G12) was  
received for THU at 07.30 on 6765.

We also asked in the last issue if any readers could ID the data  
transmission on 4644. A reader in York tells me it is not listed in  
Klingenfuss or the book 'Eavesdropping on the British Military.  
Another regular contributor tells me the signal is RTTY Baudot sending  
at 50 Baud with a shift of 850 Hz. It is encrypted and sounds like the  
NATO CRATT system. He tells me he did listen for some time but was  
unable to copy anything to ID the station.

Stop Press - recent information suggests the signal is of Russian  
military origin.

R15 PHONETIC ALPHABET - pre NATO Mode AM/99A

Reception in UK very weak.

11.00	18000	BEC	17.00	14000	FYS	(*) Not heard for some time. Can anyone confirm if still active ?
12.00	17503	WSU *	17.30	5834	MSA	
12.30	11170	MSA	18.00	5834	USP *	
13.00	11000	BEC	19.00	4130	SAR	
14.00	14000	FYP	20.00	5530	NAS	
16.30	6715	NAS	21.00	4130	MSA	

I have received several requests to confirm the Phonetic Alphabet spoken by this station due to poor reception and bad pronunciation.

Adam, Baker, Charlie, David, Edward, Frank, George, Henry, Italy, John, King, Lewis, Mary, Nancy, Otto, Peter, Queen, Robert, Susan, Thomas, Union, Victor, William, X-ray, Young, Zebra.

The original ARRL (American Radio Relay League) 1945 Alphabet says Ida for I, but this says Italy.

E16) TWO LETTER (ENGLISH) Mode SSB //G16

Stations AU - Alpha Uniform and MD - Mike Delta are still around. Transmissions are all irregular.

AU seems to have a different purpose to other call signs in this set up. Transmissions from AU are quite rare but unlike any others in this family they appear on 2 // frequencies, usually 4821 and 4888. Transmissions always start on the hour and are repeated one hour later. Last ID heard was 192.

Mike Delta is also still around and more details can be found in Simon Mason's column, along with latest operating schedule.

E17 ENGLISH LADY '00000' ENDING Mode AM Probably S6 family.

Likes the random approach to transmitting and appears without warning at the strangest of times. Seems to give good reception in the U.S.A. Reports received since last issue.

TUE	5168	02.00	'823'	WED	4030	02.15	'389'	THR	4027	02.15	'638' *
	5460	02.15	'295'					THR	6870	02.15	'638' *
								SUN	8100	14.10	'167'

(\*) Different weeks.

Full list of ID's heard over the years;

124 167 168 208 274 276 295 347 372 389 482 531 561 636 638 657 893  
823. Only 274 ever seemed to receive lots of messages, the rest don't seem to receive more than one or perhaps two messages.

GERMAN LANGUAGE

G2) SWEDISH RHAPSODY Mode AM/SSB //H4

We would still be interested in hearing from any reader who would like to take on the task of monitoring this station. We can provide special logging sheets for Swedish Rhapsody. The job would be ideal for someone with lots of time and who enjoys complicated schedules !

The details below represent recent logs only and is not a complete schedule. THE SCHEDULE STARTS ON THE 1st SATURDAY OF EACH MONTH

DAY	TIME	FREQUENCY	1	2	3	4	5
SAT	09.00	8188 SSB	*3	*3	*3		
SAT	12.00	6507 SSB	*3			*3	
SAT	22.00	3825 SSB	*3	*3			
SAT	22.30	3825 SSB	*3	*3			
SUN	00.00	5748		*			
SUN	00.30	5340	*				
SUN	10.00	8188 SSB	*3	*3	*3	*3	
SUN	11.00	8188 SSB	*3		*3	*3	
SUN	12.00	6507 SSB	*3	*3	*3	*3	*3
SUN	20.00	3823 SSB	*3	*3	*3	*3	
SUN	21.00	5340			*1		
SUN	21.30	4832 AM	*1C		*1C		
SUN	22.00	3823 SSB	*3				
SUN	22.30	3823 SSB	*3				
MON	13.00	6200	*1C		*1C		
MON	17.00	5748 AM	*1C		*1C		
MON	17.30	5748 AM	*1C		*1C		
MON	19.00	5340		*3			
MON	20.00	5340 MCW		*	*		
MON	22.00	5748 AM	*1C		*1C		
MON	22.30	5748 AM	*1C		*1C		
MON	23.00	5748 AM	*1C		*1C		
MON	23.30	5748 AM	*1C		*1C		
TUE	18.00	4195 MCW	*		*		
TUE	20.00	4195 MCW	*	*			
TUE	21.00	3823 MCW	*	*			
TUE	23.00	3825 SSB	*3	*3	*3		
WED	09.00	4195 MCW	*				
WED	13.00	6200 AM	*1C		*1C		
WED	17.00	5748 AM	*1C		*1C		
WED	17.30	5748 AM	*1C		*1C		
WED	20.00	5340 AM			*	*	
WED	22.00	5748 AM	*1C	*1	*1C	*1	
WED	22.30	5748 AM	*1C		*1C		
WED	23.00	5748 AM	*1C		*1C		
WED	23.30	5748 AM	*1C		*1C		
THU	18.00	4195 SSB			*3		
THU	19.00	5340 MCW			*		
THU	20.00	5340 AM	*3	*3	*3		
THU	21.00	5340 AM	*3	*3	*3		
THU	22.00	5340 AM	*3	*3			
THU	23.00	3825 SSB				*	

Important note :

Transmissions currently on 6200 will move to 7314 for summer.  
Transmissions currently on 5748 will move to 6200 for summer.

Please send in all logs of this station. Remember Week 1 starts on the first Saturday of each month. Note also that no transmissions take place on Friday.

Can any readers tell me if the string of UUUUU's and LOLOL call sent by Swedish Rhapsody MCW mean anything in standard call language ?  
Other none number stations have been heard to send LOLO.

G4) 3-NOTE ODDITY - Mode AM //M29

ORegular slots found at present are :

SUN	20.05	SEP	3930	OCT	3280	NOV	(21.05)	3270	DEC	(21.05)	3285
SUN	20.35	SEP	3830	OCT	3180	NOV	(21.35)	3170	DEC	(21.05)	3185
SUN	21.05	JAN	3230	FEB	3245 <sup>Ⓢ</sup>	One report of 3 Note		OCT	08.20		
SUN	21.35	JAN	3130	FEB	3145 <sup>Ⓢ</sup>			FRI	6210		
MON	13.30	SEP	5507	OCT	????	NOV	5108	DEC	????	JAN	5076
WED	"	"	"	"	"	"	"	"	"	"	"

See also sister station M29 - VDE

G6) GERMAN LADY '00000' ENDING Mode AM//S6 Family

Sends all messages using PAIRED groups. Uses regular time slots but seemingly random frequencies. Messages are repeated on a different frequency following first airing.

MON	19.00 & 20.00	Frequencies range between 4 Mhz & 11 Mhz.
TUE	19.00 & 20.00	
SUN	19.00 & 20.00	ID's not know.

G7) GERMAN LADY '000 000 ENDE' ENDING Mode AM //S7 Family

Sends all messages using SINGLE groups, uses 3F or 4F decode key. Each transmission is repeated on 2 further frequencies. Nil messages are repeated only once. Frequencies and ID's are changed each month on some networks.

Recent logs include;

TUE	06.30	THU	06.30	SAT	09.00* (*) This is a repeat but with
WED	06.00	FRI	19.00*		a different ID !

A once monthly transmission on SUN at 08.00 has also been noted on 11.8 15.9, 13.10, 17.11, 15.12 & 12.01.

ID's heard over last four months include 101 132 140 164 167 198 214 224 421 428 516 562 577 621 764 771 895 915

Ⓢ MAR 3275  
3175



G11) STRICH Mode AM //E11//S12//M3

Regular Slots, but changes frequency without warning. One ID active at present : 752 Others probably about but very difficult to find. 496 is active in both voice and NCW, but only Morse heard recently.

WEEKLY TUE 21.00 3823 4015 4780 or 5050 Calling 752  
WEEKLY WED 08.00 6430 or 7840 Calling 752

G16) GERMAN TWO LETTER STATIONS Mode SSB/AM //E16

Please see "Simon Mason Writes" for some further 2 - Letter news. Traffic from this set up is very low at present.

At the time of going to press only WL and GK are active in German and MD & AU in English.

Frequencies are selected from the following list ; 2690 2707 2745  
3228 3262 4543 4594 4821 4888 5015 5182 5732 5770 6765 6853 7404  
7532 7661 7752 7858 8063 8173 9040 9325 9450

10170 10460 10500 10740 11108 11545 11617 12092 12210 12314 13362  
13752 13775 13890 14622 14945 15610 18055 18620 18414 17430 18195  
18575 19295 19755 20240 20350 20675 22885

GK is the most active call still in use and was noted on 3262 4543 4594 5015 5284 5732 5770 6853 7740 8063 8173 9040 & 9323 during the period OCT 96-JAN97.

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ENIGMA appreciates your reception reports comments news and information for inclusion in the newsletter.

We would also be pleased to receive newspaper clippings and copies of news articles concerning espionage matters, these are not for direct publication but are very useful for keeping abreast of events and providing background information when producing the newsletter and writing features.

If your subscription is due for renewal with this issue may we request that payments are made payable to 'ENIGMA'.

The next issue of ENIGMA will be published in late July 1997, contributions would be most appreciated to arrive by Saturday June 14th 1997.

In the next issue of ENIGMA ;

'The Counting Stations' come under the spotlight.

'Which European intelligences services are on the up & which are not !'

Plus all our regular features.

SLAVIC LANGUAGES

S2) DRUMS & TRUMPETS - Mode AM /E17/M17?

Unfortunately the August transmission did not appear. Since then we have been unable to find any sign of Drums & Trumpets. It may still be around but the 19.30 4740 kHz transmission on the 9th of each month seems to have ended. Any reports appreciated.

S6) & S7) RUSSIAN MEN '00000' & '000 000' ENDING Mode AM  
See G6 & G7 for further details.

S6) Family : E6//E17?//G6//V6//M14/S25  
S7) Family : E7//G7//V7//M12

No major changes. Still very active on a wide range of frequencies. Schedules can be very protracted, tailored to requirements of individual addressees and frequency usage and ID's prone to sudden change.

A recent newspaper report on President Yeltsin's visit to Chancellor Kohl to discuss the expansion plans of NATO concluded that Russia is intensifying pressure on, and espionage activity in, Eastern Europe.

S6) ID's noted 'D-va' (Northern Russian Voice) 254 292 341 417  
S6) ID's usual voice 382 624 691 805 852 867  
S7) ID's 168 471 571 736 812

S8) YT Mode AM //M27(BTV)

This station seems to be off-air at present, it is not unusual for it to have periods of silence. Frequencies to check are 4425 & 4755.  
Reports appreciated.

S12) CHERTA Mode AM //G11//E11//M3

Still active but like all family members is prone to sudden frequency changes.

Try 1st & 3rd WED of Month 21.00 4015 or 5180 Call 971  
Try 1st MON of Month 21.00 3823 or 4465 Call 755 \*

Transmissions may repeat in the morning.

\*Not heard recently, all reports of this station appreciated.

S13 & S14) RUSSIAN COUNTING MEN/WOMEN Mode AM/SSB

S13) Most transmissions are of only 2 minutes duration. Noted at

WED 05.00 12124 Consists of 'live' counting and announcement.

S14) Still a few around. Consists of a repeating loop tape which goes on for hours on end.

Recent logs have included:

WED	19.00	4064	'Klever 75'	SUN	10.00	4329	'Zubr 23'
SAT	14.00	3875	'Gora 43'	SUN	17.00	3875	'Gora 43'
SAT	20.00	4329	'Zubr 23'				

Vassily in Moscow asked if we could explain the data mode signal which is on 3875 when S14 doesn't use this frequency? The signal is RCI72 Moscow 1 a facsimile which sends meteorological traffic.

S16) OLX Mode SSB, Morse Call Up, and //M6 OLX

Still operating 23 hours per day -

Transmissions start at 5 minutes to each hour for about 20-40 minutes. About 50/50 Morse and voice messages.

No changes to the schedule.

Daily 17.00 to 22.00 5301//9320 //11416  
00.00 to 04.00 5301//9320 //11416  
05.00 to 16.00 8142//14977//18303

A cassette recording of OLX sent to ENIGMA from Germany provided a most interesting observation. The particular transmission carried a double message, however, no indication was given at the beginning of the transmission. This effectively means that the recipient must stay tuned until the very end.

A recent press report from Prague suggests that Stanislav Devaty, acting director of the Czech intelligence agency, resigned amid allegations that it spied on a senior cabinet minister, raising tensions days before key elections. (Reuters)

S17) CZECH LADY "CONTROL" Mode AM

Again no changes to this station.

Daily 13.55 to 14.02 4485/5027 - single 5F message.

S21) RUSSIAN LADY Mode AM //M45/M1?/M50?

Still quite active, although we have not received many reports this time round. Regular schedules.

MON	19.45	5290	Calling 491	Messages for 342 used to commence
TUE	17.40	5740	Calling 342	with the group 00000 ; from New Year
THU	17.40	5740	Calling 342	this changed to 55555
THU	19.45	5290	Calling 491	
THU	20.45	3160	Calling 402	

SEE M45 FOR IMPORTANT NEW REVELATIONS.

S25) RUSSIAN MAN "CONTROL" Mode AM /S6 Family

Daily at 08.00 on 14890 ID always 615.  
08.20 on 11270\*

\*May not move here if 08.00 message is non - standard. i.e. S25A/B. 11270 may or may not be used thereafter.

S25B format becoming more frequent.

On TUE 14 January a record 5 hour transmission of S25B was noted.

OTHER LANGUAGES

V2) SPANISH LADY 2 or 3 FINALS Mode AM //M8

Very active, particularly during period 03.00 to 09.00.

MON 03.00 6827 *	THU 02.00 4018	SAT 00.00 7583
MON 03.00 4507 *	THU 04.00 7482/8970	
MON 04.00 6786	THU 08.00 7970	
MON 05.00 8012	THU 09.00 6795	SUN 05.00 7726
MON 06.00 4028/6795	THU 10.00 4028 *	SUN 06.00 4028/6786
MON 07.00 5417	THU 10.00 6787 *	SUN 07.00 5417*
MON 09.00 6927		SUN 07.00 8086*
	FRI 02.00 5238	
	FRI 02.00 6983	
TUE 02.00 9140/9093	FRI 03.00 7482/6855	
TUE 06.00 8906	FRI 04.00 6255/6768/6855 +	
WED 02.00 7890	FRI 04.00 4479	
WED 03.00 6826	FRI 05.00 4028	(*) Indicates 2 freq's with different msg's.
WED 08.00 8924	FRI 09.00 7726	
WED 11.00 5903	FRI 10.00 6785	(+) 3 // freq's in use for same message.
	FRI 16.00 6855	

On Friday 17.1.87 a rare format double message was sent. We have noted a recent increase in transmission length, most are now around 45 minutes in duration consisting of 3x150 group messages. Thanks to Tom in U.S.A. for logs.

V5A) COUNTING - SPANISH 4F

Just a couple of reports received.

POSSIBLY DAILY 02.00 5238 For ID 335  
POSSIBLY DAILY 03.00 6802 For ID's 015 303 629

V6) SPANISH LADY '00000' ENDING Mode AM //S6 Family

Part of the S6 Family. See G6 for further details.

Schedules frequently change but gives a strong signal in Europe.

Last heard FRI 12.00 14970

V7) SPANISH MAN ENDS '000 000' Mode AM //S7 Family

See G7 for further details. Quite busy at present. Transmissions noted ;

MON 20.00 Frequencies sometimes used for 1 month then changed. All  
TUE 06.00 transmissions repeat messages on two further frequencies.  
WED 06.00 Nil messages are only repeated on one further frequency.  
FRI 20.00  
SAT 04.00

ID's noted ; 117 130 144 273 365 398 407 514 519 578 609 610 621 653  
663 726 925

V8) EASTERN MUSIC STATION Mode AM /R9

This station is related to K9 the 'Magnetic Fields' outfit. The language used by V8 is Arabic, and uses mixed single digits and multiple numbers.

Single Numbers in Arabic are - (1) Wahid (2) Ethnain (3) Thalatha (4) Arba-a (5) Khamsah (6) Sittah (7) Sab-ah (8) Thamaniyah (9) Tes-ah.

Transmissions seem to take place on the first FRI and first SAT of the month, however this is inconsistent and the station has been noted operating on NOV 2nd, DEC 7th and FEB 8th.

The FEB 8th broadcast tape was sent at double speed making the whole transmission impossible to copy unless you can write very very fast !

1st or 2nd FRI 08.20 11290 +/- 5kHz  
1st or 2nd SAT 18.00 6645 +/- 5kHz Try 18.00 or 19.00  
(19.00) 6645 +/- 5kHz

I have received some very interesting information from our blind listener Christian (via Andreas in Germany). Christian tells ENIGMA that the music used by this station may be from the Syrian guitar player Omar Korshid (and his orchestra). The guitar introduction is typical of Korshid. Christian continues that Korshid is a Syrian but this does not mean that the station is connected to Syria, his songs are popular all over the Arab world including Lebanon, Egypt, Libya and also Iraq. The records are produced in Greece.

V13) NEW STAR BROADCASTING Mode AM

The only New Star Broadcasting frequency which seems to reach Europe with a readable signal is 8300 which can be heard in the afternoon and evenings.

Heard with a weak signal in both the U.K. & U.S.A at 12.00 8300

Other known frequencies used by this Taiwan based station are 9725 11430 13750 & 15388.

XPH HIGH PITCH POLYTONE TRANSMISSIONS - Mode AM/S7 family.

Still some regular time slots in use. Changes from UTC winter time back to BST for summer. Frequencies are changed most months.

Transmissions noted at ; May adjust to Summer Time. This could suggest that many of these are aimed at the U.K. ?

TUE/FRI	21.00	NOV	TUE/FRI	DEC	TUE/FRI	JAN
	5431		5754		5754	
	5131		5254		5254	
	4031		4454		4454	
WED	07.00	WED	07.00	DEC	07.00	JAN
	5413		5754		5754	
	5131		5254		5254	
	4031		4454		4454	

Several mistakes have been noted with the Polytone transmissions. The station appeared on MON 2.12.96 in addition to the regular TUE broadcast.

Peter in Saffron Walden told us about a major mistake on FRI 6.12.96. He writes 'I parked the receiver on 5754 just before 21.00 expecting to hear the first tone transmission, but instead an M12 CW station came on; sending 724 724 724 1, ck/gc 218 51 218 51. This was repeated at 21.20 on 5254 and 21.40 on 4454 kHz. On FRI 13.12.96 the Polytone turned up again as expected'.

This raises two interesting points. First confirmation that as we long suspected, M12 and the Polytone stations are the same set up and secondly the revelation of the ID and group count in plain numbers. Readers who have studied Polytones will be aware that they do not give a group count, this would effectively identify the tone sequence of say '51' in this particular case and it would then be possible to break into the tone sequence and convert it back to plain numbers. An effect of Polytone is to build in an additional layer, making it more difficult to even read the numbers without a decoder. It would be interesting to know just how all the technology behind sending messages works. Is there a large switching centre which is capable of sending the coded messages in RUSSIAN GERMAN ENGLISH, SPANISH, C.W. & POLYTONE and even selecting which voice style and whether it is male or female all at the flick of a switch? Who knows.....

X6) The 6 Tone repeating stations are still very active. No schedule has ever been established. Some transmissions have been known to repeat within the hour.

It is well worth staying on the frequency once the 6 tone AM signal ends. On odd occasions a short string of Morse is sent followed by an FSK message. This sometimes occurs about 30 seconds after the 6 tone signal leaves the air.

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Due to pressure of space we were unable to squeeze all your letters into the 'Letter to ENIGMA pages'.

CONTINUED FROM LETTERS TO ENIGMA-

Thanks to V in Devon, David in Essex, Sven in Linköping Sweden, Van in Merksen, Belgium and Godfrey in South Africa. All wrote asking about ENIGMA.

Marcel in France tells us that he found a numbers related matter in an issue of Megahertz magazine (?), he says - 'I found a reference to number stations in which the writer mentioned that he had been interviewed (on a different subject) at an FM radio station, By chance he had met M Alexandre de Marenches, a former director of the SDECE - who was visiting the FM radio station on the same day. He asked him about number stations and the answer was "some things must be kept secret, no further comments !" (sounds like a familiar answer).

And last but not least, Brian in Sussex sent me a Harrap's Serbo-Croat phrase book, he tells me it was not very expensive for obvious reasons. We will end with a phrase from page 44.

"Ovaj me čovjek slijedi - this man has been following me"

MORSE STATION NEWS

by M.G.

Like 8BY, no preamble this time - straight into the news.  
(All IDs listed have been active from at least October onwards)

M1 SEE M45 FOR REVEALING NEWS! As always, this station is still full of surprises. In mid-December the final group of standard M1 messages changed from being a seemingly random 5F group to a group based on date of message compilation and group count less one. The third figure is always a zero. The first one of these noted occurred on the 'A' network 1800 slot on Tues 17th Dec - a standard 40 group message ending with the group: 17039. 17 representing the date of compilation - as with all 'A's this being the same as date of transmission, implying a sense of urgency. The 39 being 40 less one. A little can be gleaned from this development: the earlier standard 40 group messages almost certainly contained a number of redundant filler groups as the final group can clearly be spared to fulfil this rather pointless purpose. If date of transmission and date of compilation are always the same, why bother sending this information? The GC is given twice in the preamble and twice in the ending so why on earth give it again in the final group - albeit minus one, which presumably omits including itself in the count? Is this mere mystification for its own sake? Is it intended to make the uninitiated believe that there are always 39 valid groups in this typical form of message? Much more could be said about this, but this isn't the time. Long running 'B' network messages continue to include the same date of compilation from one month to the next. As no indication of month is included, the month of compilation becomes ambiguous. Why should only the date matter? An example of this is the Saturday 1610 slot to 325 on 5240kHz, which since 25th Jan has been sending an unprecedented 57 group message every week and is still doing so at the end of February. The final group is 22056, compiled, therefore, on the 22nd - of January - presumably, that is; we can't be sure. 22056 it remains. Another oddity is that 325 is Standard GC = 30 type. The present msg is nearly twice as long - this breaks the rules! Very occasionally this happens on 'B' network transmissions.

We've not finished with this fascinating station yet. A while ago I mentioned end-of-month style variants being reported at odd times and unrelated to 'A' network EDMs. At last, I have found some of these and they are even more bizarre too. These use a Standard GC of 10. Tue 7.1 0700 4515kHz: in mid tr ..... 333 55549 (retuned as I'd previously caught another one of these elsewhere!)....5f groups = 123 9 \* 111 and three long dashes - not zeroes. Meanwhile, on 5175 there was the other one. This time I caught an ID element - the ID was 307. .... 307 56455 \* 333 74633 \* 333 88583 \*\* 111 999 \*

(expecting a message to follow I was fooled by another 111)  
111 213 10 = 23456 (interesting!) 90484 32038 82776 82018  
48440 18472 72044 84010 84720 = 213 10 \*\*\*\*\*etc. No ending!  
This short msg contains no fewer than five 84s and three 72s  
and is unlikely to be of a random nature. It serves a very  
different purpose to normal M1 messages. The lack of ending  
was significant for more was to come after 5 minutes of  
silence. At 0715 came 307 56612 (this first element sent 11  
times) 307 (error) \*\*\*37sec 111 999 \*10sec 111 (again, as  
before - no mistake) 213 10 = (repeat of 0700 msg) = 213 10  
\*\*15sec 111 and again three long dashes. This time it really  
had ended. On the following day at 0705 on 4515 it popped up  
again. This time I caught an ID. It sent the first element  
231 231 231 55769 55769 for three minutes. Nothing further  
followed within the next 20 minutes when I gave up on it.  
What does all this mean? All elements and operational codes  
are of the same pattern as normal EOM trs but there are many  
peculiarities: Non-random groups, inexplicable scheduling  
(using their second transmitter again), A & B element 5fig  
groups seemingly unrelated to ID, very low GCs, 3 long dashes,  
final group of msg does not conform to new date/GC style,  
repeating of msg, that suspicious first group and those decode  
keys, 123 and 213 along with ID 231 are all a bit much! I  
suspect that the form of encryption used in the message  
element is of a form which would not require a decode key, and  
DKs are probably dummies. At 0700 on the following Tue both  
transmitters were active again. 4517kHz: 231 48203 \*\*20sec 231  
54828 \*\*20sec 111 999 \*\*15sec 111 213 10 = (probably same msg  
as previous week - poor signal) = 213 10 \*\*20sec 111 and three  
long dashes. A transmission on 5175 ended two minutes later  
with = 213 10 \*10sec 111 and the dashes. Was this the same  
msg yet again? This network always transmits in pure CW,  
hand-sent, not in the odd MCW used by other M1 networks.

Returning to the relative sanity of the normally reliable 'A'  
network schedule, chaos reigned around Christmas last year.  
The expected 1800 & 2000 Tue slots never materialised on 24th  
Dec. Instead, they appeared on Christmas Day, the first time  
this network has been heard on a Wednesday. The usual EOM  
transmissions followed as expected on the next day. Oddly,  
the final groups on 25th Dec showed that the messages were  
actually compiled on that day. On the same day a 'C' network  
msg went out to ID unknown at 1500 on 5320. A record 68 group  
msg ending in a random 57483 = 284 68 111 \* 000 \* 333 (after  
the end signal). An up-to-date list of EOM trs will be  
published in the next issue, along with 'B' IDs etc.

M2 No change - same schedule and IDs - as expected.

M3 Usual behaviour patterns. The mysterious 121 has appeared  
again with a not-unexpected repeat on the same day. 41 groups  
at 0830 on 4722 and 1000 on 5365. 121 tends to be a short-  
lived but busy ID and has distinctly different habits to all  
the others. Active IDs since October: 010 011 012 013 014 015



016 017 018 019 040 041 043 044 045 047 121 214 231(E) 496 503  
508 741(new ID) 752(G) 755(S) 971(S) 976. Sampled GCs: 51 56  
51 53 55 58 56 57 53 59 52 57 57 59 53 55 56 57 58 41 56 54 54  
50. It is significant that the only GC not in the 50s is 121's  
with 41. Freqs in use: 3060 3823 4015 4090 4722 4780 4870  
5050 5090 5180 5360 5365 5520 5610 5625 5830 5870 6330 6540  
6430 6640 7208 (976 - beat with BC sta.) 7444 7670 7830 7840.

M4 Probably no change. See G2 for most of these.

M6 (OLX) No change - same schedule and IDs - as expected.

M7 Quite elusive. No change in activity levels. This and M10 have schedules which by their very nature are very time-consuming to prepare and keep up-to-date. Logs are inadequate and more work needs doing to sort this station out. IDs, being only sent three times, are hard to collate. Active IDs where known are: 771 785 803 844 - others exist. The removal of the 10 minutes of rapid dashes last year from this station and M10 can only imply one thing: that the agents/illegals listening to their transmissions have now acquired receivers with high frequency resetting accuracy, making a tuning signal no longer necessary. However, M7 still retains its tone sequences and modulated carrier. Why? Because some kind of electronic morse reader or automatic recording equipment is in use for unattended operation. Tuned to the modulation frequency, the initial one minute tone sequence will trigger the reader, the very short ID sequence is all that is needed, and the final minute of tones will close down the reader. It's not quite that simple for there are six different types of TS, four of which may be used at either the start or the end of transmission, the other two being restricted to one or the other. They are made up of two or three elements: dots, dashes and long dashes and some can be likened to morse characters, however, their timing is not correct for morse. They are: A, U, N, K with a long final dash, M with a long final dash (only at tr start) and M with a long first dash (only at tr end). There are no Ds and no Ks with long first dash. Unlike M10, 'circuit numbers' are not used by M7. If 'Langley Pierce's theory' about CNS still stands it is probable that these tone sequences carry some kind of scheduling/repeat information which in some way is passed on to the reader/recorder. Also unlike M10, parallel freqs are not used - this would be consistent with the use of automatic recording equipment. Much more could be learnt from concentrated monitoring and analysis of these stations.

M8 A new format is largely - but not entirely - being used, in which three 150 group messages are sent in each transmission increasing their length to 45min. The 5fig (cut) headers used, along with those of its sister operation, V2, are not random but have an ID element - the first 2/3 figures. A feature is being prepared on this extensive Cuban network.

M10 See also M7. Increasingly (?) active, using a wider selection of parallel freqs than formerly, making it less easy to locate. Similar kind of scheduling patterns to M17 but schedules are far more subject to change. Thanks to Ian (Dorset) for a log of a record GC on 19th Dec: 661-79/79, 423-73/25. IDs: 012 249 253 275 314 357 401 408 423 435 451 571 638 661 667 684 695 738(?) 792 820 835 844 866 873 903 961 983 984 988 997. Transmissions may include messages for up to four IDs. Rare variants need looking out for. Some new freqs: 5060//? 5007//4775 5007//5470 5295//? 6204//5554 3352//? Highest freq logged so far: 14650

M10C A most interesting transmission on Mon 17.2 4305//? could mean that the days of discrete IDs are drawing to a close and we are returning to the Cold War encrypted 5fig IDs. Already sending at 1830 M10 was using the S10 format - probably M10's original format - but I have designated this as a C variant. ....19 19 18 18 28711 28711 28711 50 50 16 16 = = (16x5F) = = 50 50 16 16 76526 76526 76526 61 61 17 17 = = (17x5F) = = 61 61 17 17 000 Are the Czechs responding to ENIGMA's interest? - If so, the above ID list could be our last!

M12 Habits closely follow those of all other S7 family members. Extremely active as usual. IDs: 016 034 097 137 140 154 197 213 256 289 321 304 315 341 365 399 415 425 462 478 549 577 649 658 715 724 730 749 781 785 788 794 823 825 826 847 851 888 903 915 936 945 946 952 963 964 995. IDs 658 & 749 are very busy and may carry messages to be passed on by other means to several agents.

M13 A record 80 group msg was sent on 2nd Feb (2000: R - 2100:7535, R - 3.2 2000 & 2100:5733) to 590. This ID is prone to long messages, GCs of 40 or more are not unusual. It also sends its message on the 1st & 3rd Sun & Mon of each month, twice on each day. Like all other IDs, freqs and serial numbers change monthly. IDs with last heard SNs: 253/151 254/155 261/172 272/175 284/147 387/151 417/145 517/153 590/173 714/148 735-000/154 752/202 (Where's this one been hiding all this time, the earliest of all?) 823/146 847-000/152 975/148

M14/24 Habits closely follow those of all S6 family members. Very active as usual. IDs include: 104 137 263 325 380 464 482 517 529 537 571 587 671 672 691 738 863 906

M16 (BBY) Still following usual patterns. To be featured in next issue.

M17 Probably no change - but needs closer attention to complete schedule. This station uses a very stable schedule. Transmissions are never late - always starting on time to the nearest second. Are Bulgarian intelligence really that well-

organised?? Should we be Ready Ready to believe anything we hear?

M18 Still on 3802 doing the usual. Not around, late Feb. - may have moved again.

M20 No reports this time. This means little.

M21 Still all over the place doing the usual.

M22 (4XZ) Just why are the Israeli navy sending 5fig codes in ~~MORSE~~ many times daily. They may operate the transmitters - possibly - but who sends the traffic? Would the size of the navy justify the amount of traffic? Any information on the Israeli Navy would be very welcome. New freq: 6607 in mil. agro band. Navies don't do this but E10 does! (6600 & 6658)

M23 Has been quite active over past months with several of its characteristic bursts of activity. Throughout its periods of operation all trs. are daily at same time/freq slot. Two schedules running for some time in December never seemed to send any messages: 2000 6290//6919 null ID 753 ended 19.12, and 2100 5349//6290 null ID 359 ended 28.12. Other schedules come and go usually for a few weeks at a time - and frustratingly unpredictable. A variant format operated during October on 7000kHz(!) at 1000 sending different messages daily. This version sends 10min of long zeroes grouped in 5s as a message indicator. This variant doesn't seem to use parallel freqs. One in Dec at 2000 on 3380 sent 10min of 55555 - this is a null msg indicator, quite rare with this variant. In Jan this operated daily at 1000 on 5180 (00000 - messages each time) only to change to 0800 for its last tr. on 29th. M23 messages are always worth recording in full. Not only do they use a non-random encryption, but they are sometimes made up of identifiable sections with significant start/end groups. For example, the 28th Jan tr of this schedule (40grp) included part of the 50 group msg sent on 24th Jan - 16 groups had been taken from the middle of that msg and tagged onto the end of the later one. A schedule at 2200 on 6780//5349 (odd/even IDs) has just finished, and another one at 1400 on 8307//9285 recently begun - no messages so far.

M25 (KKN series) Apart from KKN50 are there any other stations of this network still active? Can anyone help?

M26 This rarity crawled out of the woodwork a few times recently. Very tedious to monitor, for once there it remains so for hours. It isn't really worth discussing it here; an article would be more appropriate. We have received useful logs of this station for some time now, yet I keep putting off the feature, probably because I have a strong personal aversion to its habits! For what it's worth, I last logged it, already running, on 28.1 at 0730 5173kHz and it was still

at it at 1025 when I gave up. As always 'messages' changed erratically amidst most boring stretches. From 0737 to 0935 all it sent were 98s apart from two 59s at 0930.

M27 (BTV) No reports of this station, nor S8 (YT). It is beginning to look as if it has become extinct, but it's still too early to tell. Last heard March 96. Keep checking 4755 & 4424kHz.

M28 (HEP) No change. Messages never heard. Still alleged to be Swiss Interpol, but no really convincing evidence. Probably some kind of fall-back system - does it really need to keep running 24hr a day, 365 days a year? Is the expense worth it?

M29 (VDE) VDE, using its complex (non-M29A) preamble has been appearing at 0700 (Repeat at 0730) - 4/5MHz region, several days a week, and also daily(?) at 1800 and Sundays 2000, both in 3MHz region, Fri 0940: 5MHz. As with G4, freqs and messages change monthly, and encryption is of the same distinctive type. Due to priority being given to other stations, this one has not received the attention it deserves.

M31 (FDC etc) Has certain similarities with HEP, but is more adventurous. Until further information is received these two will not be included in future. They cannot be termed 'numbers stations', but they are mysteries.

M32 type These are Russian military nets of interest to 'numbers' listeners - I find their elegant complexity quite challenging - but they are not strictly what we are about: they are distractions. May receive occasional mention in future but will not be routinely included. (Harold - PZL5 sounds like a similar Russian Mil. net - the accented letters you refer to are actually Cyrillic, the German CH (----) being the Cyrillic X (pron. as in Scottish "loch").

M33 (P8K) This is no military net despite the 'claims' and 'revelations' of our devoted disinformation agents. See accompanying feature. Its activities ended in October and it hasn't been heard since. This has happened before. Where does it go? Does another station take over??

M34 This exotic graced us with an appearance on Tue 4.2 and was already sending at when I found it at 0830 on 5039kHz  
.....\* 31 31 31 10610 43399 04798 29744 90043 06857 80415  
86265 03728 73025 43399 \* 67 67 67 15410 40391 02302 04543  
34437 45059 93682 82413 94938 62690 40391 \* 67 67 67  
15410.....40391 That was it - this station sends no ending.  
Each msg is repeated once, groups not paired, long zeroes, 2fig IDs. Note that the 2nd group in each message appears again at their ends, i.e. 43399 & 40391. It was also reported on Sun 5.1 0820/4053: 95 61 17 (R5) (22x5f for 95, 12grp for 61, 24grp for 61 (61 again), 12 & 13grp for 17.

\*\* M29A March 1800 (daily?) 5480kHz

M39 See my sample log in this issue. I was incorrect in the last issue when I referred to this station's randomness; it now turns out to be more methodical than I imagined, as it is only recently that I discovered that it transmits every 15 minutes when operating. Each tr lasts 11 minutes in which an ID and four 5fig elements are sent. During a recent burst of activity, which I intensively monitored for the first time I came across distinct patterns and the results are included elsewhere in this issue. IDs last for up to a few days only and their associated elements may be carried over from one day to another, the last one being the most likely to do this - this trend becoming less likely as we move back towards the first element - which, in this sample, never carries over. The first 2 figs of each group are, in most cases related to both the ID and the element position. The station always uses two parallel freqs which seem to change on the hour. Those logged recently: 5005//? 5502//? 5508//? 5300//4026 5560//? 5565//5313 5584//5284 4024//? As you can see; it never keeps still! Its schedule eludes me at present. Can pop up at any time. Logs appreciated.

M42 (KUL network) Due to its very minor Morse element we cannot really include this one on a regular basis. Needless to say, it is still very active. It also plays a very different role to the archetypal 'numbers station' - it is a 'pseudo-diplomatic' undoubtedly involved in espionage activity but communicates between fixed sites, not to agents in the field. Further information on SOUD - we don't even know what it stands for - would be very welcome.

M43 (6XMB/C37A group) This seems to have a similar sort of status as M42 but is not a SOUD operation. It is still something of a mystery. What else links Israel, Germany, Italy, Cyprus and Russia? Rumours that it may have some connection with the Weisenthal Foundation may have more than a grain of truth in them.

M45 See also M1. There is some news on this one at last. Its usual predictability has recently been enlivened by two independant developments: 1 - Along with its sister station S21's 342 schedule (which shadows M45 entirely apart from using M45's ID, 150) the first group of every message changed from 00000 to 55555. This change took place on the first transmission of 1997, and has remained 55555 ever since. 2 - A more revealing change took place also on 2nd January (the first 150 & 342 transmissions of 1997) in which the final message group took on the same form as M1's final group which changed at almost the same time. M45's final group indicated that the message had been compiled on that busy day for M1, Xmas Day, and withheld until 2nd Jan. so it clearly had no urgency until that date or later. This confirms M45/S21's links with M1 - something I thought unlikely even though their formats are the same. This was because there were several minor but significant oddities unrelated to format. These

were: a) M45's slow auto-keying in ICW as opposed to M1's variable speed manual keying in MCW (of a strange kind) b) The 150/342 network's use of the 00000 first group. c) M45's lack of a 'standard' group count. Although usually in the low 20s the GC deviates too often from 20 to identify 20 as its 'standard GC'. This is normal; it is M1's strong preference for GCs of 10, 20, 30, 40 & maybe 50 that's unusual - like everything else about that station. I have always suspected that other M45s existed - not only 150. Looking through my old unidentified (or wrongly identified) logs I came across an M11 with the notes, 'auto slow' and '1st grp 22222'. This looks suspiciously like M45. Sun 26.11.94 0800 5455kHz 287-372 34 22222....11111 last group, Sun 25.12.94 same time/freq 287-382 24 22222. So M45 also has a 287 ID. The speculation that S21/M45 originate from a breakaway Soviet state was based merely on the language used and the apparently relatively recent appearance of S21. However, this does not preclude the possibility that M45 was in existence long before. S21, the 342 schedule at least, merely duplicates M45's message but in Russian - it may have been added to provide the 'service' to Russian-speaking non-morse-reading agents (or whatever) 'taken in' after the break-up of the USSR. M1 has been around since the 1970s - at least. I am now almost certain as to who is behind M1 and its relatives, and it is by no means a typical espionage network. Revealing this would cause considerable embarrassment to the agencies involved. We must respect their sensitivities. At least one thing has been cleared up: M45 & M1, having identical endings, confirms the Endings Rule, i.e. that unrelated stations never use the same endings - so convenient for monitoring agencies who are too slow to catch the start of transmissions. Wild visions of an international conspiracy spring to mind, where, in the early Cold War days, a top secret international conference took place (in Geneva, of course) with the laudable aim of 'Standardising of Formats for the Mutual Benefit of All Concerned Parties'!

✦ M50 New Designation This station, thanks to Guy (Portsmouth) has recently been rediscovered and is now being taken seriously. I first heard this one on Mon 15.5.95 at 1800 on 5431kHz. Having missed the beginning I identified it as a Standard GC = 50 M1, which, in a way, it was. Ian (Dorset), too, logged it as an M1 on 12.10.96. It seems that this station has been popping up at the same time/freq ever since and on any day. It is often very weak and easily overlooked. It operates several formats and IDs in an apparently arbitrary manner, is hand-keyed like M1, often very badly, and sometimes auto-keyed. It often uses the M1 format and often does not. A 44 inserted after the GC in the preamble seems to indicate that the following message (so far always 50 groups) will be of mixed groups, that is groups of 2, 3, 4 or 5 figures. It has an almost pathological preference for the number five, sometimes sending messages where 50%+ of the digits are fives! It can be heard several times a week always on same freq/time, but be warned; it is not always punctual and may be up to 5

\*\* M50 now heard (March) 1820 4947kHz

minutes late, and may also end abruptly in mid-transmission. I have a theory as to its purpose - its habits are not really senseless at all - it is yet another aspect of M1 - but further discussion will have to wait for a feature in the next issue. There is too much to say here.

M51 New Designation This has possibly been around for a while but has only recently come to our notice - thanks again to Guy. It seems to operate no schedule and can only be found by chance always on a different freq and at a different time. Has been heard Mondays to Thursdays since September. Times & freqs; -1600/5301 -0910/4843 -0820/5280 -0905/3825 -1200/4835 -1105/5331 (same day as 0910). All of these started earlier than the times indicated so complete format isn't yet known. Messages are of 100x 5 letter groups (not paired) using Roman alphabet, and auto-keyed at c25wpm. A 2fig serial number precedes each message and is often followed by a single letter, e.g. NR73 D 18:25:14 1996(msg follows). The time/year groups are accurate to the nearest second and are UTC+1 but take account of local summertime. The serial No cycle is irregular, NR1 can follow NR24 or NR90 for example, however, they are consecutive. Transmissions end abruptly in mid-message flow and can last for over 5 hours. Preambles may include extra figures, e.g. NR70 D25 09:24:30 1996. It has similarities to PBK, and needs watching.

M52 New designation Reported by Ian (Dorset) on 10th Dec on 5201.5kHz. Slow morse. Type of zeroes not known. - 08 II 820704 820704 820704 II 30 II 33 AR sent continuously from 1236 to 1253. A similar 'message' at 1300 - 08 : 830334 830334 830334 : 30 : 33 AR Repeated until 1400. Then at 1408 - 08 : 832334 832334 832334 : 30 :33 AR Finishing at 1431. The II, later written conventionally as a colon, is a separation signal rarely heard nowadays. The only other numbers stations to use it are PBK & M23 in one of its several formats. The 6fig groups could link this oddity to the Two Day Wonder, M5, which also used very slow morse and, incidentally, long zeroes.

MX (SLHFM) Cluster S & C still on all usual freqs 24hr/day but 4556 can be somewhat erratic - sometimes nothing is there, sometimes they both are and lately I've heard an unusually strong S alone. It may just be conditions. L: 3091 with chirp as always - my personal favourite - it's the only one with a character of its own! R: 3196//3323//often 4325/7 also. R with long dash heard in Jan while the other two were normal. V: 3174 most of time, but has migrated a few times over past few months to 5274 & 4785 (new freq?) - less irregular gaps recently. The always short-lived Ps have appeared on 3838 4030 40434050 4080 4898 (new?) 5880//6935 5885 5880 6935. On 27.12 an M marker was operating around 5.15MHz, but due to the nature of the Morse M it may not have been a SLHFB. Leaving the best news to the last, 23rd Jan saw the appearance of a very rare F on 5042 - it had long gaps between the letters and a distinct occasional 'glitch'.

Monitoring of M39 sequence over period: 7,8,9,10 Jan 96 - 0800-0930UTC

Time UTC	Time Slot	7.1 <sup>+</sup>	8.1	9.1	10.1	Freq	
0800	1	461	702	539	702	5005777	Parallel frequencies not sought.
0815	2	?	881	611	881	"	No transmissions found at 0945.
0830	3	800	539	007	539	"	<sup>A</sup> IDs 702 & 881 may have had earlier time-slots before 0800 on 9th Jan.
0845	4	220	611	735	611	"	
0900	5	167	007	731	722	5502//?	<sup>+</sup> All IDs on 7th Jan were dropped by 0800 on the following day.
0915	6	178	735	259	826	"	
0930	7	646	731	640*	-	"	IDs 735 & 731 dropped by 0800 on 10th Jan. Also 259 & 640

\* at 0920 on 5508//?

New IDs added: 259, 640 on 9th  
722, 826 on 10th

'ID'	Date	Time Slot	1st element	2nd element	3rd element	4th element	
702	8.1	1	33174	66380	41565	40786	2 elements carried over ?missing 9th Jan?
	9.1	-	A	A	↓	↓	
	10.1	1	34068	67352	41565	40786	
881	8.1	2	31065	55744	60613	26267	A - see note above 3 elements carried over ?missing 9th Jan?
	9.1	-	A	A ↓	↓	↓	
	10.1	2	34348	55744	60613	26267	
539	8.1	3	06619	91609	74022	61723	2 elements carried over but <u>missing</u> 9th Jan
	9.1	1	05607	37318	69497	28827	
	10.1	3	08857	30726	74022	61723	
611	8.1	4	43566	78959	01675	43855	2 elements carried over once. 1 element carried over twice.
	9.1	2	42924	71112	20598	43855	
	10.1	4	44564	71112	20598	43855	
007	8.1	5	56421	81605	35646	94819	2 elements carried over once.
	9.1	3	55372	16419	35646	94819	
	10.1	-	ID dropped				
735	8.1	6	55880	82241	18058	98789	2 elements carried over once.
	9.1	4	53187	41046	18058	98789	
	10.1	-	ID dropped				
731	8.1	7	82137	10678	43437	34426	1 element carried over once.
	9.1	5	90416	66592	02120	34426	
	10.1	-	ID dropped				
259	8.1	-					
	9.1	6	66071	16718	83780	48975	
	10.1	-	ID dropped				
640	8.1	-					
	9.1	7	12755	17718	35926	03960	
	10.1	-	ID dropped				
722	8.1	-					
	9.1	-					
	10.1	5	03220	98079	12467	25737	
826	8.1	-					
	9.1	-					
	10.1	6	24029	99592	05271	05063	

Anomalous groups within same element are shown underlined, where more than one example is present. First two figures would appear to be related to both ID and element in most cases.



## Letters to E.N.I.G.M.A.

A very warm welcome to issue 12. First of all, we would like to wish all our readers a Happy New Year and thank you for your support during 1996.

Let's get started, and first off, the subject of books. Tom in Essex wrote: 're "Letters" in issue 11, Simon Mason refers to "The Ultimate Spy Book" published by Dorling Kindersley, selling in the UK for £16.99, ISBN 07513 02562. On the shelves of shops like W H Smith and Dillons.

This book is in DK's usual beautiful format, finely produced. I haven't read it but gather the treatment is quite largely historical, full of fine illustrations of equipment used in the work. Those who have read spy books, fiction or non-fiction, would probably enjoy it for background. I'm not sure that it is so much for the specialist. For instance, when Schimmel's "Underground Frequency Guide" was reviewed in ENIGMA some time ago, I knew I just had to have it. The "Ultimate" book I would describe more as a luxury, and certainly very attractive to look at.

I am also told from a reader in France that Keith H. Melton author of the book works for the McDonald food chain and is the owner of the largest private collection of spying equipment in the world. He owns every type of WWII agent radio. Unconfirmed reports say that he recently acquired the whole stock of old equipment from the Special Operations Executive!

Thanks Tom for your letter, a review of "Ultimate" can be found in this issue of ENIGMA.

Staying with publications, I received a note in the post from Interproducts of Perth Scotland, to tell me that the reprinted version of Intercepting Numbers Stations - Langley Pierce, is now available. Have any readers purchased a copy and is it any different from the original version?

Michael in Staffordshire wrote to comment on Brian in Sussex's comments in issue 10 (page 46, Para 3), who stated that it was not possible to trace the recipient of a particular radio transmission. Not so, at least it was not so until the advent of the popular digitally synthesised receiver. In the late 50's and most of the 60's MI5 had a technique, code-named RAFTER, which allowed a suitably equipped person to determine, from a reasonable distance, if a receiver was tuned to a particular frequency. It worked as follows: Receivers of this era used a local oscillator comprising an adjustable tuned circuit and a valve or transistor. This arrangement was called a "self oscillating mixer" and no matter how well it was screened would always radiate to some degree. In addition a degree of "reverse modulation" took place.

These two phenomena taken together meant that a second receiver could be used to determine if the receiver under surveillance was tuned to a particular frequency.

The operational method was to tune a monitoring receiver to the frequency of the local oscillator in the receiver under surveillance. When the tuning was aligned in this way the second receiver could "hear" the signal being received by the receiver under surveillance by virtue of the reverse modulation.

The signal radiated from such a local oscillator could, typically, be received several hundred metres away and the reception of such a signal provided irrefutable proof that a receiver was indeed tuned to a particular signal.

This technique was used by MI5 to prove conclusively that receivers in the Russian Embassy were tuned to the frequency used by MI5's Watchers radios. + The advent of digital synthesis has put an end to this type of surveillance because there is no local oscillator as such to listen to. There is instead a master oscillator and a digital subsystem. All one gets from this setup is digital hash. (+ VHF receivers are far more likely to produce strong L.O. radiation - M.G.)

As an interesting finale, MI5 arranged to have RAFTER equipment installed in an aircraft and to overfly London in an experiment to see how many receivers were tuned to a particular Russian numbers station. They were able to establish that, in any particular evening, up to six receivers in the capital were listening to the transmission. \*

Ed note from M.G. (\* These RAFTER claims are probably exaggerated in 'Spycatcher' and are not entirely technically correct. Many receivers were immune from radiation-especially modulation-being before the advent of synthesised local oscillators. So called 'self-oscillating' mixers are and were only used in domestic transistorised receivers-virtually never used in domestic valve receivers. In more expensive receivers R.F. amplifiers would reduce L.O. radiation considerably. Stabilised and decoupled supplies would eliminate modulation. All superhet receivers radiate as they require a local oscillator.

My Racal RA17, the first 'synthesised' receiver, radiates to a certain extent but this frequency is not directly related to the received frequency nor to its modulated. All synthesised receivers radiate. Any surveillance receiver can be used to time the period of this radiation i.e. when did it appear and disappear, this information can be used to correlate with known number station transmission periods. Nor is it beyond the bounds of possibility that received frequencies cannot be identified, however, it would be technically a lot more difficult. The only 'safe' receiver is the simplest - the T.R.F. where no local oscillator is used. As long as the detector operates below the point of oscillation, no amount of technical wizardry can detect the presence of one of these receivers. Many professional Russian spy receivers were of this type for this reason.)

Thanks for that, Michael, and also your notes about the E10 station SYN, I hope you will enjoy our update in this issue of ENIGMA.

Now on to Lincolnshire Poacher and a letter from TF in Cleveland. He starts - 'I follow many numbers stations but in particular the one entitled by your group The Lincolnshire Poacher (E3), mainly on 11545 kHz. On this frequency I have rarely heard any form of jaming and the preamble is definitely not a glockenspiel (which translates as "bellchimes").

The two-note preamble and the Lincolnshire Poacher tune itself are undoubtedly played on a peculiar instrument called a Calliope (pronounced "Kal-li-opee" and literally meaning: beautiful-voiced). Only of U.S. and Canadian origin this instrument is a steam organ; hence its strange, haunting and slightly breathy sound. It was/is mainly found in the U.S. and started out on the Mississippi steamboats as a source of entertainment on the long river voyages or excursion trips. On such boats there was obviously a ready source of available steam and I believe the early instruments were played by using the underside of the clenched fists to push down large "keys". Each key operated a steam valve which, when depressed, released steam to its associated organ pipe and played a note.

There were considerable maintenance difficulties with such an instrument due to the wet nature of its operating medium and it was obviously not suited to being shore-based; unless you had the means to produce large quantities of steam. Playing a melody quickly released a great amount of steam pressure so a considerable head of steam had to be constantly available.

Some forty-odd years ago I did once hear a Calliope being played at a steam rally in Redruth, Cornwall, but no doubt this numbers station electronically reproduces the sound of a real Calliope.

In Greek mythology there is a Calliope who is the Muse of epic poetry. I think the person who organised this station may have a finely-tuned sense of black humour ! Thanks TF for such an original angle on LP.

Martin in Northamptonshire read about ENIGMA following our feature in Short Wave Magazine's October issue (more on this a little later) and tells us that he is quite new to listening and purchased a second-hand Sangean AT803A to listen to number stations. Martin noted an error in an LP transmission on 23 September at 21.00. The oddity occurred in the 79th group, the first reading was 48664 & the second was 48667, Martin had this on tape so is certain of the error. (LP please pay more careful attention).

P.T.A. in Edinburgh asks if any attention is given to locating the jamming stations ? Most jammers now seem to be based in the Middle East area. Little or no jamming seems to take place in Europe following the end of the cold war. The main number stations which suffer jamming are Lincolnshire Poacher (E3) and The Counting Stations (E5).

Starting with LP, recent detailed observations carried out in Germany show that jamming is not blanket in coverage. The country carrying out the jamming has at least four transmitters in use for blocking number stations and at least a mediocre monitoring service. We can also conclude that they do not (unlike some other agencies) read ENIGMA !

The main jamming periods are 10.00 to 14.45 on the three high frequencies. It would seem to be the case that other more important matters take the attention of the jamming stations after this time. This is likely to be the large number of clandestine stations which target Iran. Voice of the Mojahed is pursued with vigour. Jamming seems to resume in the mid-evening period, however, not all frequencies are jammed, this is either due to a shortage of transmitters or the mediocre monitoring station is unable to locate the missing frequencies.

Due to the complex sliding schedule of message headers used by LP the jamming is not effective in completely blocking a message. The second station (E5) Counting Stations used to suffer more severe attack but in recent years this has scaled down to only occasional jamming. Certainly a great deal of effort and expense is required to block number station messages.

We have reported in previous issues that the jamming which effects LP is particularly strong when monitored in the Middle East.

Any new information concerning the location of number station jammers would be appreciated. Finally, on the subject of jamming I asked in the last issue about the new VoA relay station in Kuwait. I am reliably informed that it is operating on 1548 kHz MW and that the transmissions in Farsi are indeed jammed. This information was also confirmed by Kim Andrew Elliott on the VoA programme "Communications World".

Our correspondent tells me that both he and Kim Elliott agree that MW is easier to jam than SW, due to the fact that shortwave propagation of the jammer is unstable. In a report Mr Vladimir Osrogorsky, long time head of the German service of Radio Moscow was once ordered to write a piece about Radio Liberty and was therefore allowed to listen to the broadcast for a period of time. He went to his weekend home (known as dacha in Russian, a kind of bungalow) near Moscow where it was possible to listen to Radio Liberty - with problems, but it was possible.

Now on to the ENIGMA feature which appeared in the British publication, Short Wave Magazine in October 1996. First, our thanks to SW Magazine for taking the decision to publish the feature, in Britain the law concerning listening is quite clear and as we have said previously number stations have always had a very low profile in the British radio press.

The response from readers was excellent and we received a stack of letters subscriptions and enquiries. Existing ENIGMA readers were very pleased with the finished results. We must, however, apologise for a few gremlins which found their way into the feature. Due to the long lead times involved some ENIGMA updates and corrections did not make it to the final published version but none-the-less the end results were very pleasing indeed. Thanks again to Short Wave Magazine.

It is not possible to mention everyone who wrote in but please accept our thanks. I would also like to pass on thanks to David in Peterborough who sent details of ENIGMA to the World DX Club. We have had lots of letters from WDXC members asking about ENIGMA.

Greetings to Neil in Bath who wrote to WDXC asking for an explanation of these strange transmissions and who was pointed towards ENIGMA, also hello to Robert in Essex and Simon in Shropshire who first encountered number stations in 1971 while listening to Radio Northsea on 6205 kHz. - This often had interference from Swedish Rhapsody on 6200 kHz.

Hello to W in London who found his first copy of ENIGMA a 'truly most interesting, informative and intriguing read'. Also greetings to Paul in Surrey who has listened since the late 1960's.

Thanks to P of Hertfordshire - he says he enjoyed very much the special section in Short Wave Magazine. He goes on to say that he first heard a numbers station in the late 1950's in the "tropical band" - the "call up" consisted of a not very melodious sequence of notes on a piano and the language was possibly either Slavic or German.

P also mentions the high signal strength of some stations and remarks on good reception of the Counting Station (E5). We shall be running a major feature on this station in the next issue (13) of ENIGMA and will include your comments concerning transmitter sites for this station.

A quick mention and thank you to Clive in Cornwall. We appreciated all your contributions to our Alpha Phonetic station (E10) feature in this issue. He tells me a story which has been circulating in number station circles for years and years, but I am certain some readers will not have heard it.

Clive says "I was once told that the Two Letter Stations (E16/G16) were in fact the German equivalent of our National Rivers Authority reporting the levels of pollution in Germany's rivers and lakes!". I would really like to know who started some of the rumours, others are recounted in Simon Mason's book 'Secret Signals' and include 'the weather forecasts for the Swiss Alps (Swedish Rhapsody!) plus perhaps international banking transactions or even secret government communications with UFOs! Any aliens capable of reaching earth are unlikely to have one-time pads, however, if they did turn up on Christmas Day they may wonder why the streets are deserted and we are all sat at home around a dead tree? Clive, keep up the good work.

Who was the first numbers station listener? Well Andreas in Germany may have tracked him down.....

The following is taken from a feature "Kurzwellenpanorama" (Shortwave Panorama) about one of the most interesting Austrian radio pioneers, Anton Habsburg. He was born in 1901 and as a little boy became interested in radio. He had a room, built some equipment and learned Morse code. Because of his position in the Austrian monarchy he had no judicial problems with his activities.

So he made some QSOs (radio contacts) with the Austrian military station in Vienna. His first activities were during WWI, when he became involved in numbers transmissions. He regularly tuned to the coded messages from the enemy stations (around thirty pages of material each day). These were FL- "Tour Eiffel" from Paris; ICI from Cotona, Italy; MSK from Moscow. These stations exchanged coded messages. He always wrote down the numbers and on his way home from school called at the War Office.

He handed over the messages to the radio operator there, saying "I can't use it, not knowing the key, but if you can use it - if not throw it away." The department "Militärchifren" (Military chiefs) consisted of three groups: Russian codes (under Viktor von Marquesetti), Romanian codes (Captain Cornelious Sabu and Italian codes (Major Andreas Fidl). Fidl became chief cryptographer of the Republic of Austria after WWI, and after 1938 (when Austria became part of Hitler's Third Reich) became advisor to the cryptology departments in fascist Germany.

The numbers were always checked and they were found to be correct, on one occasion the antennas on the receiving station could not operate due to heavy frost (this occurred at the VoA Greenville site last winter), so they could not receive the messages. But they had Habsburg's copy of the message which they could use.

Was he the first numbers monitor ?

More quick thanks - first to Alan in Solihull - logs always appreciated, Ian formerly of Perth who has now relocated to Dorset, quite a move, hope you are enjoying life at your new location. Thanks also to our readers in Russia including Vassily, Ivan and Zikin.

Thomas writes from Germany - 'I would like to congratulate you for your work including so many details. Thomas comments on the following (from the last ENIGMA) - PGZ: MFA Paris, FDC:French Airforce Metz, HEP: Interpol Zürich, PBK:Coastguard, Netherlands (from: Spezialfrequenzliste,Siebel-Verlag, Germany). Thank for the logs.

Staying on the subject of HEP - following comments made to ENIGMA by the Swiss PTT about the protection of privacy - Andreas asks whose privacy are they protecting ? John in Derby tells us that the 10th edition of the International Frequency Handbook shows HEP as Interpol and this is also repeated in the British - based Shortwave Magazine which recently reported HEP7 on 6871 kHz and HEP was also noted on 8400 kHz in SITOR.

The rumours that HEP is Interpol have been doing the rounds for many years but have never been confirmed. Has anyone anywhere ever heard any traffic from HEP ? I am also interested in something called the 'go code', this is a system used to confirm the launch of a nuclear weapon.

Not a pleasant thought, but if a country is to launch a nuclear weapon the instruction must be passed in a secure manner, this, unlike a James Bond film does not involve pressing a big fat red button. In such an event the messages would be sent on a variety of bands including VLF, HF, VHF, UHF, EHF and SHF by land-based, aerial, orbital and shipborne transmitters. I don't want to go into great detail but it is possible that some stations which we hear on HF sending idling calls 24 hours per day may form part of such a system. Candidates would certainly include the FDY, FDC, FDG & FDI family of French stations.

HEP may have a similar purpose to the 'go code' system. The station operates 24 hours per day and sends no traffic. Does Switzerland have a Nuclear device - does anybody know ? They were certainly developing nuclear weapons in the 1950's.

Switzerland is very nuclear conscious with bunkers for the civilian population and in addition all new homes built after 1960 (approx) have a nuclear shelter. Could HEP perhaps form the basis of some kind of internal early warning signalling system for the authorities to communicate ? Comments very welcome.

Greetings and thanks to Gert in Holland thank-you for your letter. A very detailed letter from Fritz concerning our feature on the 14403 station - ENIGMA 10 & 11. Fritz says - 'when Walt decided to check M32 he did not choose an easy one as this net shows many characteristics of a "normal" Morse net of the Russian (CIS) armed forces.

Until the early 1970s one could assign Warsaw Pact Morse nets to army, navy and air force. All used different preambles and habits-the Czech railways even had plain language and it could be seen without problems, when for example the Black Sea fleet moved around.

Later on everything changed quite rapidly and all over the Warsaw Pact there was only one pbl (with exceptions) of the following format:

"Msg.number-exact number of groups-date(no leading zeroes) - time of preparation of message (local Eastern time)-repeat of number =3F link group(s) or Z-codes = txt consisting of 5L or 5F or 5L Umlaut-last group". This last group contained the date (day) and number of groups. In the case of 5L groups the translation is as follows:

a=1    b=2    w=3    g=4    d=5    e=6    v=7    z=8    i=9    k=0

Sometimes the sender or the addressee is mentioned again in front of or after the pbl.Msg. These are normally advised with a short blind call ending with AR. All the QRAs consisted of 4LF groups (no "U" and "R" on the first place and never FFLL or LLFF). Urgent msg are announced with "XXX" and often consist of Z-codes or some plain cyrilic words. The nets mostly are of the "guided star" type with the whole traffic controlled by one of several centres using one of several QRAs. If CQ call signs are used, the msg's are sometimes sent blind after repeated announcements. Mode of transmission is normally Duplex and very often there are day and night frequencies. They may change daily or may last for years.

Due to political changes by the end of 1989 much of the excellent discipline disappeared and further modifications may have also taken place. Anyway, today one can find many modified QRAs and pbls and I believe most of the nets are operated by the Russians. I do however not know enough about traffic from other CIS members. If, as e.g. on CISNy5343 the same frequency is used by UNID nets with 4LF tactical call signs, but with the same Z codes as the Ny (ZZD,ZGR,ZZU,etc) then the whole lot is quite complicated to log. I know the problem of the number of groups which is, of course intentionally, wrong, but could never understand why.

Professionally operated nets of a higher ranking (I assume) still use the original pbls and start their text with a series of the same letter. There are many training nets around as well-most of them are easy to recognise, because telegram numbers are normally very low, the number of groups is always the same and the centre asks for a repeat of the whole telegram although they confirm QSA 5. It is of course not easy to find the second DUPLEX frequency, typically they are only spaced between 50 and 300 kHz and are within the same MHz. The keying sometimes is very bad, resulting in errors in - I think - Walts notes.

If you are lucky enough to catch XXX msg's you may even observe how quickly other nets are activated and the same message is repeated. I have never been able to correlate political tensions, seasons or whatever with the number of these Morse nets. Sometimes there are so many of them - 3 weeks later: nothing heard ! Gone ! Why ? Many of these comms have been replaced by RTTY - we all know the countless number of CIS 50, 75 & 100 Bd stations sounding very similar to Baudot mode.

I hope these explanations may be a little bit of help to readers, who are interested in CIS Morse nets, although I know it is not directly within the scope of Number Stations. But there may be links between different nets which we did not yet consider.

Concerning the 14403 net unfortunately I have not been able to hear anything of them and therefore my log is nil.

Thank you Fritz for a very detailed response to our features, good to hear from you and please keep in touch.

A quick hello to Jim in Essex, he says- "I do enjoy reading the journal which I find most informative and interesting more so as I look after an aged and infirm relative and so my listening is now restricted to very infrequent and short periods and the articles and news keep me up to date with things." Thanks for the kind comments Jim.

A quick hello also to Ken in Doncaster, hope you are keeping well and refreshed from your recent holiday in Houston. Thanks for all the MT information. Staying in the U.S.A. - Tom, (thanks for all the logs) is hoping to write an update on the US numbers scene for the next issue (13) of ENIGMA. We will look forward to hearing from you Tom.

More quick thanks to Hans in Germany who sends in some very well presented logs, and also a quick mention to Tom in Chelmsford, good to hear from you.

Jacques in Holland asks that we do not make the voice reports too compact and that we should always show logged frequencies. Unfortunately space is a 'big' problem with ENIGMA, indeed we have so much to squeeze in that its almost impossible. In terms of logged frequencies we always try to give details. The problem is that some stations just will not stay still particularly '00000' ending stations like E6/G6/S6/V6. While E7/G7/S7/V7 along with G4 to name but a few like to change each month. Pleased to read, Jacques, how much you enjoy ENIGMA.

More news about 'The Laughing Cavalier' from our good friend 'D'. 'The underground radio society that Peter Quintel belonged to was small and highly secret but I do not know if it still exists because many of its members would now be very old (Peter was over 70 when he passed away). It was made up of ex-GCHQ people and SIGINTers from the Armed forces who continued their monitoring after they left the Department and exchanged information on an informal basis. It was not a formal club and I doubt if there are many people who would admit to having knowledge of its activities, membership or existence !

Regarding COUNTERCLAN, Peter seldom mentioned this and my knowledge of this shadowy group is rather limited. What information is in the public domain is contained in the Peter Wright book "Spycatcher". It involved the use of SIGINT for counter-espionage purposes and was one of the West's main weapons in the war against Russian spying'. Hope you had an enjoyable holiday in Scotland 'D'.

Several readers have written in about "The Brotherhood" stations. These are a vast networks of Russian and former Eastern Bloc countries which operate under the banner of the little known SOUD. Thanks to Leslie in Sheffield and Tom in the U.S.A. for the logs and details.



In November 1968 Chief Technician Douglas Ronald Britten of the Royal Air Force pleaded guilty to 5 charges of passing secrets to the Russians. His case was largely heard behind closed doors but whatever was said, it earned him 21 years in prison. What did emerge was that this most cunning and mercenary of traitors was controlled by numbers.

During his RAF career this technician and teleprinter operator had served in Iraq, Egypt and Cyprus but his most damaging spying was committed at RAF Digby from 1966 to 1968. He told many lies to Police and RAF investigators and the precise details of the SIGINT he betrayed, how he was "run" and recruited will probably never be known. He probably started spying in Cyprus in 1962 due to the large debt he had accumulated but his most serious damage was inflicted when he returned to the U.K. Some people believe that he may have started spying even before he left Cyprus as he had a home posting which was not disclosed at his trial, but was perhaps Digby. He was trusted by his superiors and regarded as a highly skilled technician. He was also regarded as quick thinking and utterly reliable and passed his PV with ease.

He said that when he was walking in the Science Museum in Kensington in 1962 he was approached by a Russian radio listener who was interested in shortwave. He said that this was his first meeting with a Russian contact. They talked about amateur radio for 10 minutes and the Russian asked him if he could get a copy of the manual for the T1154. This was an obsolete transmitter which came on the market after WWII. The Russian contact said he could give him instructions on meeting a new contact in Cyprus where he was shortly due to be posted. In Cyprus he was asked to supply data on the people he worked with such as their sexual orientation and drinking and was called to meetings by being sent a card. He received varying amounts of money after each meeting and he probably lied about the precise sums he received which he said were a few hundred pounds. The Russians told him that he was not producing enough material and constantly put him under pressure and said they were fed up paying out money for no results. Britten also said that he was beaten up by them on a few occasions. They also showed him a photograph of himself receiving money from a Russian. He was told that it would be sent to British Intelligence if he did not continue supplying information and work harder to collect it. One meeting he had with the Russians was held cruising around Famagusta in a diplomatic car !

In 1966 he was posted back to Digby in England and he met the Russians at Arnos Grove in North London after his return. His controller was "Yuri" who was Alexandr Borisenko, a Cultural Attachè at the Soviet Embassy. He was given a sheet of paper containing a callsign, frequencies and instructions for encoding and decoding messages which would come by radio from Moscow. He was also supplied with a camera disguised as a wallet and it had its own lamps thus enabling it to operate in total darkness. It could take pictures by being wiped over a document to expose the film. It had a fault though and he never used it and did not even destroy the instruction notes as he had been told to do by the Russians.

His one-time-pad had each page numbered in the top right hand corner and each page had 6 blocks of 10 five digit groups. He also had 2 beer cans with false bottoms, a piece of piping and a magnetic container concealing information by sticking it under a seat. The Russians also supplied him with a Minox camera.

Much was made at the time that he was a Radio Amateur and in the 1962 edition of the RSGB Amateur Call Book he appeared as Cpl D R Britten with the call G3KFL. In later editions he dropped the military rank. The Russians probably found out about him via amateur radio and had presumably been selecting suitable hams in official positions as targets. This he said was how the Russians approached him but he did not explain how they knew his callsign when they met him at the museum. In his house at Digby he had equipment which although not excessive could transmit and receive signals from Moscow. He denied ever having used his transmitter to pass information to the other side however. He admitted using the Digby Amateur Radio Club Room to receive a message from Moscow as he spent a lot of time alone at night engaged on his hobby. It appears the messages were sent to him in CW.

He was caught because he missed a rendezvous with his contact in February 1968. They were supposed to meet in Pinner in North-West London. He went to the Russian Consulate and delivered a letter asking for more money after he had telephoned them. In his telephone call he asked for his contact and was told that there was nobody there who could help him. The call was undoubtedly intercepted and he was seen going to the building, thus bringing about his downfall. In the official report on the case, the authorities made out that he had been investigated by the RAF & MI5 because of his debts and this resulted in his detection.

(Interestingly, Britten worked at Digby at the same time that Prime worked at Gatow supplying it with intercepts ! Prime would go on to be an even more infamous traitor who was also controlled by numbers.

His trial in November 1968 was mostly in camera (private) so little is known about what he did and he pleaded guilty. Much information about SIGINT operations and RAF communications was passed to the Russians and he had an unusually good memory and thus was able to pass information verbally. The nature of the material he handled at Digby and Cyprus would make this relatively easy. His damage was serious and his use of codes was described as "ingenious and sophisticated". His sole motive for spying was money and nobody could believe that he was a traitor. He only received a few hundred pounds for his spying which even today remains obscure. He remains an ENIGMA.....'D'.

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At present RAF Digby in Lincolnshire is amongst other things the home of the 591 Signals Unit which has 'special dispensation' by the DTI to covertly listen in on mobile phone calls made by Forces personnel.

591 Signals Unit already performs a variety of electronic surveillance tasks, including intelligence-gathering, communications security and checking that classified information on computer screens cannot be picked up from outside RAF stations. The unit's traditional role has been to ensure the security of RAF communications, performing 'defensive monitoring' of RAF radio frequencies and their own telephone and fax systems to spot people discussing classified material on open lines or frequencies. It runs a fleet of mobile monitoring vehicles. Digby has long been home of 591 S.U. & 322 Signal Squadron - which specialises in HF SIGINT. e.g. Russian Airforce. It co-operates closely with G.C.H.Q. and other military SIGINT units.

KGB SPIES A HOLIDAY OPPORTUNITY  
by Carey Scott in Moscow

Fed up with the usual tourist guides to the world's capitals? Want something a little more exotic than a potted history of the Sacré Coeur? Some retired KGB agents hoping to put their experience to good use while supplementing their pensions may have just the thing.

The KGB Tourist Guide to the Cities of the World, being released in Moscow, is not your average Baedeker. The introduction note tells us: "The reader will not be the ordinary tourist - he will find out about the best parks for secret meetings, visit the restaurants frequented by top KGB agents, and wander the spies' favourite routes."

The alternative guide seems part of an unprecedented public relations blitz by the Russian foreign intelligence service, or SVR, which launched its own CD-Rom of Russian spying history recently with personnel files, photographs and interviews from KGB archives.

The authors of both, blessed with greater glasnost than their MI6 colleagues, see no reason not to commercialise their hard-won knowledge. Mikhail Lyubimov, a former London based agent, said recently: "I know London better than MI6, and MI6 knows Moscow better than I do."

He and his colleagues have compiled reminiscences and observations of cities from Rome to Bangkok, with un-usual tips for visitors and warnings for tourists about local eccentricities.

Russians in London, for example, are warned by Lyubimov about that odd British penchant for muesli, regarded by most Russians as rabbit food. "I hate it, but I eat it," says Lyubimov. "It's good for the digestion." Lyubimov also advises would-be drivers that, unlike Russia, cars do not stop at zebra crossings and British policemen, unlike their Russian counterparts, are unbriable; and it is explained that milk can be delivered to your home.

Lyubimov, who professes to be a fan of fish and chips, waxes lyrical about Marks & Spencer - "that democratic cheap store" - and the pleasures of pushing prams around the Serpentine in Hyde Park.

Portobello Road market, beloved by Russian shoppers for decades is singled out as a must for those in search of everything from clothes to Brussels sprouts, which are un-available in Russia.

For those hoping to tread in the footsteps of Soviet secret agents, London Zoo is recommended for secret assignations. From past experience however, Lyubimov warns would-be spies not to feed the animals, which can attract unwelcome attention from zoo keepers.

The Victoria & Albert museum is recommended so that "you can see what the British stole from other places during their days of empire", said Lyubimov.

For food, he suggested the Chinese restaurants of Soho. And the elegant Lyubimov, his eye sharpened by years of trying to go unnoticed in London crowds, advises his Russian readers to be careful of the colours of their cloths. English gentlemen, he lectures, never wear brown.

If all this fails to amuse Russians, they can buy the SVR's CD-Rom, which promises to lure readers into the deepest secrets of the Soviet past, all for £25. "We figure the Russian taxpayer has a right to know what we get up to," said Yury Kobaladze, spin doctor supremo of the SVR and the brain behind the CD-Rom tour of the intelligence corridors.

Not surprisingly, the CD-Rom, available in Russian and English, is thin on exactly what the SVR does these days - though viewers clicking through the disk can access files on history ranging from the Soviet pursuit of the atom bomb to the recruitment of the Cambridge Five and the building of the Berlin Wall in 1961.

Not everyone shares Kobaladze's enthusiasm. He admitted: "A lot of the old veterans ask, 'Why, what's the point?'"

However, Kobaladze reckons that, just as the CIA recruits on American college campuses, "the CD-Rom could provide some good advertising, to get young people to come and work for us".

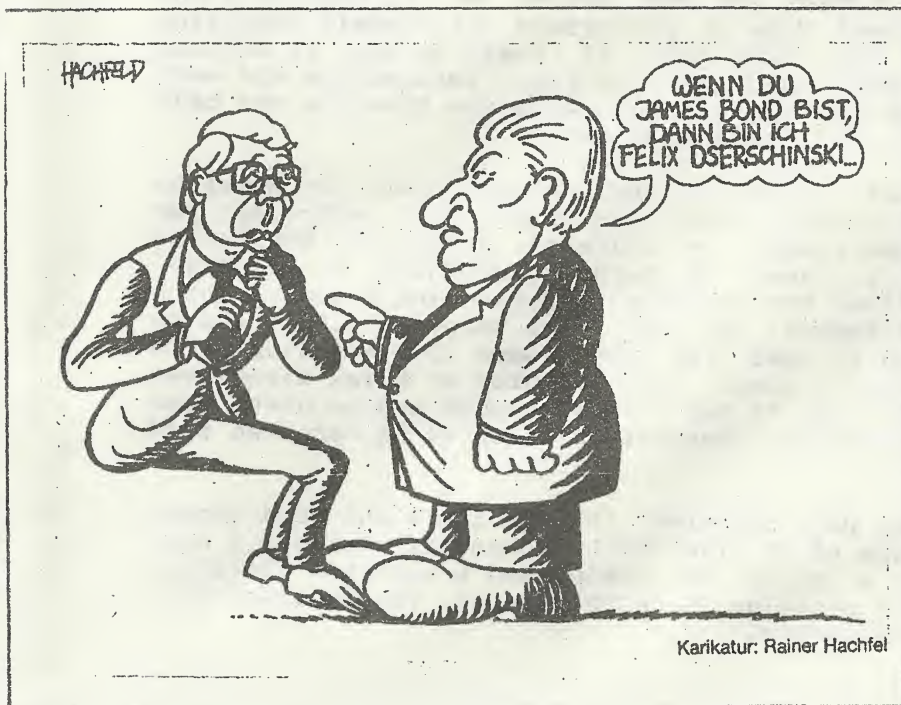
The disk also gives the once silent Russian spy network a chance to promote the Russian version of history. English bookshops, Kobaladze complained, are crammed with the West's version of the cold war - including those, most irritatingly to the the SVR, by British double agents such as Oleg Gordievsky, once Lyubimov's deputy.

"It's time we put across our side of the story," said Kobaladze, "instead of just reading translations of Gordievsky."

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If any readers have any further details about these two products please let us know and we will publish information on stockists and prices. If you have managed to obtain either item we would be happy to receive your reviews.

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Mr Yeltsin here :

"If you are James Bond, I'm Feliks Dzherzhinsky..."

Thanks Andreas.

This station made its most recent reappearance in March 1996 and operated daily until the end of September. This seems to be one of its characteristics. Transmissions conformed to a simple reliable schedule commencing at 1900 and ending at 1930 on two parallel freqs: 5760 & 6960. A repeat tr was sent at 2000 on the same freqs. Messages are further repeated twice two days later, and yet twice again two days after that.

Transmissions are of two forms - 5-figure and 5-letter - which usually alternate from one day to the next and each consists of six messages averaging 44 groups each to quite a close tolerance. Groups are not paired, and long zeroes are used. Although keying is automatic, errors frequently creep in and may or may not be present in repeats, e.g. occasional 6fig groups within a msg where the first figure is duplicated. These sort of errors are not of the human sort, and have much in common with those found on FDC, another suspect French station. Keying speed gradually increases as the transmission progresses, as if it needs to keep within the 30min period - a highly unusual characteristic.

Figure messages are sent on odd-numbered dates of the month, and letters on even dates. If the month ends in an odd date, then two consecutive figure trs are sent, otherwise letters and figures alternate. Format varies between the two. Both share the same 3min call: VVV VVV VVV DE P8K P8K P8K. Figure trs are very simple and begin with the GC for the first msg followed by the message itself. E.g. GR43 (43x5f groups) = B The next msg would follow similarly, with the final message ending = (without the B) QRU QRU AR AR.

Letter trs have additional preamble elements in the form of serial numbers and date/time groups etc. e.g. NR67 R 261031Z GR40 (40x 51 groups) = B, the 6th msg again ending without the B, QRU QRU AR AR. A separation signal (II) may be sent before and after the R in the preamble (see M52 for a note on these). Formats are not entirely consistent but this would seem to be the intended form. Serial numbers are consecutive, and return to 01 after msg NR99. Dates of compilation are never more than three days before the first date of transmission and often share the same date.

Two other suspect stations with similar bogus callsigns are P7X and P6Z. The former, a morse station, also uses the II in its preamble but its QRA type call is more in the American style. Recently using 8039.5kHz at 1400 (daily?) it uses 5-letter groups. Typical format: Call: QRA DE P7X IIPII 101400Z GR120 = (120x51) First & last grps identical. Ends = AR. Sends same msg repeatedly for several hours. Rumoured to

be a U.S. forces training station, this would seem unlikely as it has so many similarities to P8K. The other odd one is P6Z - uses 15873kHz amongst others, FEC-A 192baud 400Hz shift - has been identified as being under the control of the French MFA at Paris. Undoubtedly involved in secret intelligence operations, as it doesn't use a legitimate call sign. P8K is almost certainly connected with French intelligence/special forces activities in Europe.

Below is an illustration of its operation during the month of July '96. Beginning with my arbitrary transmission serial No. to indicate each new message group, followed by dates in July, average message group counts, letter msg serial numbers and ending with letter msg compilation dates:-

1	fig	31(Jun),1,3	41		
2	let	28,30(Jun),2	46	NR65-70	26Jun
3	let	4,6,8	45	NR71-76	2Jul
4	fig	5,7,9	42		
5	let	10,12,14	44	NR77-82	10Jul
6	fig	11,13,15	43		
7	let	16,18,20	45	NR83-88	15Jul
8	fig	17,19,21	43		
9	fig	23,25,27	44		
10	let	22,24,26	46	NR89-94	22Jul
11	let	28,30,2(Aug)	46	NR95-01	28Jul
12	fig	29,31,1(Aug)	44		

Therefore sixty messages originated in July; this would be typical of any other month. Any more information or ideas on these stations would be welcomed. Thanks go to GD (Portsmouth), BR(Sussex) and Chris Smolinski for providing material for this article.

#### IMPORTANT - SITE INFORMATION

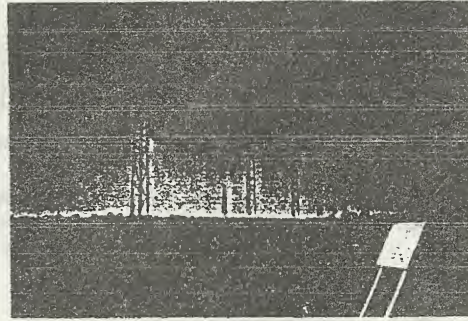
by H.F.Adcock

For some time now ENIGMA has been aware of the location and operating agencies of several numbers stations. For reasons we cannot yet disclose we have chosen not to publish these details. However, we do need these details confirmed independantly by subscribers without official access to such information.

Locating sites need not be as daunting as it appears especially where stations with predictable regular schedules are concerned. Techniques are a mixture of basic detective work, common sense, intuition and luck. First of all a list of all HF sites within a particular country must be compiled. Over half of these will be receive-only, some of which will be involved in monitoring and identifying unknown transmissions - including spy 'burst' trs. Sources are very varied: 1) Most national mapping agencies indicate large HF sites on their maps by a cluster of mast symbols. These must then be

identified on the ground, and either eliminated or put on a suspect list. 2) Local information, gossip, rumour - all can be fruitful sources. 3) Published information - government directories, planning applications, internal 'House' journals, historical memoirs and biographies (a very fruitful source for information about the, usually WWII, origins of many sites), union journals, even telephone directories can be useful. 4) Field strength tests around sites will instantly pinpoint whether a transmission originates there, or not. 5) Innocent, and often unconnected, press reports can sometimes give away gems of information - especially those referring to post-Warsaw Pact military 'shake-ups' in Central Europe. The range of sources is as wide as the imagination. With a little effort in the field many loose ends in the Numbers scene can be tied up. We should, therefore, view site location as being of equal importance to monitoring.

Using these methods I identified virtually all HF sites in Britain during the late 70s/early 80s, some of which were being used for espionage transmissions. Not all of these sites were marked on the British Ordnance Survey maps, despite their great size. It was some of these that proved the most interesting. After the end of the Cold War several of them changed their roles, their controlling agencies or even closed down. MI6/FCD sites, run by HMGCC, have been extensively rebuilt at enormous cost. There have also been great changes in some CSO (Composite Signals Organisation - the civilian monitoring arm of GCHQ), military SIGINT, NSA sites and the DTI site at Baldock - all of which are involved in covert international radio operations. If you would like to see articles on such sites - historical or contemporary - why not do a little research in your own country and send us the results?



Our thanks go to our subscribers in various government agencies for supporting us in our work. Your contributions are always appreciated. If numbers stations are solely what we "suppose them to be" as a British DTI spokesman admitted to the Daily Telegraph newspaper recently, then there should be no need to pretend that they don't exist - they should all be legally registered as such with the ITU. In fact they are concerned with more than espionage alone, a fact which that particular official was almost certainly unaware of.

(Photos show the Composite Signals Organisation Station at Cheadle, Staffs. - one of several such sites: main entrance and HF interferometer aerials. Summer 1996)

# E.N.I.G.M.A. Bookshelf

## THE ULTIMATE SPY BOOK

Keith H. Melton

Published by Dorling Kindersley ISBN 0-7513-0256-2 Large format full colour. Priced in the U.K. at £16.99. Available through W.H.Smith and at smaller branches by special order (about 4 days).

It is difficult not to praise this book so we apologise now if this sounds like an advertisement rather than a review !

The book is prefaced by William Colby, former CIA Director, and Oleg Kalugin, former Chief of KGB Foreign Counter Intelligence.

This book tells the story of famous spies through history : who they were, what they did and how they did it. Details are given about undercover operations such as the daring exploits of the SOE during World War II, the intrigues of the Cold War, and present day intelligence gathering.

Of the many books which are devoted to espionage, very few ever show pictures of the equipment used by clandestine agents. The reason is that such equipment is of a highly classified nature.

The idea that information about such equipment should reach the public domain is a threat to the intelligence services and the acknowledgement of such equipment could provide valuable information about the activities of opposing agencies.

The Ultimate Spy Book certainly lives upto its name - beautifully illustrated with over 600 high quality colour photographs showing all aspects of the secret world of espionage.

Each item is pictured with a short description. Amongst all these objects you will find : clandestine radios, concealment, cryptography, photography, secret weapons, sabotage devices, electronic surveillance, lock picking, letter interception techniques, bug finding, microdots, escape evasion, etc... who could ask for more ?

Staying within our number stations hobby, ENIGMA readers will be delighted to find descriptions of the type II MKII and type A MK III suitcase radios, MCR1 receiver (SOE), SSTR1 (OSS), SE100/11 (Abwehr, attache case radio used by the CIA agents during the 1950's, a KGB radio of the 1960's Delco 5300 miniature transceiver (CIA), German FE-10 miniature SW receiver of the 1980's allowing 'sleeper' agents to monitor his number station and a radio with GRA-71 burst encoder used by the SAS.

If all that's not enough there are also KGB burst tapes and a one time pad used by SOE agents.

If you like espionage and clandestine equipment, this book is absolutely a must for you. Keith H. Melton is an avid collector of such specialist equipment. This book brings you a visual museum of the kind of equipment you are unlikely to find anywhere else !

Marcel.



## Things That Go Buzz In The Night

Its that time once again to listen to all those unknown buzzes and bleeps. Welcome along to another of our "Things That Go Buzz In The Night" pages.

### HAARP PROJECT

Despite all the attention given to HAARP the British media and Short Wave press don't seem to have taken any interest. Across the Atlantic the debate continues about just what the HAARP project is all about. ENIGMA readers have commented-

First Tom in the USA. "There seems to be quite a bit of controversy regarding this facility, but from what I've seen there doesn't seem to be much substance to it. From my experience with the military, if there was anything secret about this project at all, there would be no pictures taken of it. Also, looking at the picture of the sign on the fence in the Monitoring Times article, there is no barbed wire atop the fence. If this project were classified, the area would be surrounded by a security fence with armed guards. Of course, it's just my opinion that the US government doesn't have any "secret plans" for this station (at least not right now)".

Marcel in France adds-"In my humble personal opinion there is no risk to mankind from the HAARP facility".

We would still be interested to hear of any information concerning the times/frequencies and also the mode of HAARP transmissions, information of this kind seems very lacking from the project team !

### THE BUZZER

Quite a mixed bag of feedback following our feature on the possible location and use of the Buzzer 4625 kHz (occasionally other frequencies). First, Brian in West Sussex. 'Your article on the possible use of "The Buzzer" as a status indicator for the Chernobyl reactor is well-argued and seemed to me to have ring of truth in it. It presents the best theory to date, which seems to fit all the facts. While reading the article I found myself recalling a documentary on one of the UK nuclear power stations aired some while ago. Throughout the programme could be heard the relentless pulsing sound of a klaxon operating within the plant to indicate the safe status of the equipment. While this in itself is not connected, it is a curious coincidence regarding the use of a very similar indicator to signal a nuclear "All's well" status.'

More positive evidence of that Russian connection reached the ENIGMA office with a letter from Richard in Buckinghamshire. During the Summer Richard visited the C.I.S. and reports. "I took with me my new Sony SW100E; it's very good. I was especially interested in the origin of the so called 'Buzzer' station on 4625 kHz. In Minsk (where it has been reported as coming from) it was extremely loud in my hotel room in the afternoon and evening.

But in the morning it was a very faint signal. The rest of my travels were mainly in Azerbaijan, Armenia etc, and around the Black and Caspian seas. In all these locations the 'Buzzer' was audible, but weak, and became weaker the further south or east I travelled. Upon reaching Moscow I tuned in on arrival at my Hotel (in the City Centre) and to my amazement, the signal was so strong that I had to switch the attenuator in and also disconnect the aerial, this was the only way the radio didn't become overloaded. So I'm convinced it originates from the Moscow area."

Andreas in Germany was unconvinced by the suggestion that the signal could be heard 24 hours per day at the suggested receiving site in Austria. He did not feel that reception would be too good during daytime hours.

I have noted a fair signal as early as 14.00 UTC in England ! And finally for now, I decided to write to 'Moscow Mailbag' at the Voice of Russia World Service just to see if they would pass comment on the 'Buzzer'. The reply was - well, shall we say, disappointing.

Moscow - "Dear Sir, First it was the "Woodpecker" now it's the "Buzzer". I asked the engineer in charge of transmitters and was told they know nothing about it. Sincerely, Joe Adamov."

I will leave you to draw your own conclusions. I did also ask for the address of the organisation which controls radio transmissions in Russia, but they ignored that bit totally !

#### FADERS

These particular signals are still very active and can be heard on a wide spread of frequencies. We have not made any further progress in the identification of these unusual signals. It is worth noting that only one organisation or country seems to use this mode.

Thanks to readers who sent in logs. Richard, you are on the right signal, but Derek, I think you may be tuned to something else. Tom in Chelmsford told me he had given up on these ! Don't give up Tom try early evenings using the list below.

Fader frequencies noted since last issue of ENIGMA (many others are probably active) -

Please note that frequencies may vary by +/-3kHz.

3191	4020	5090	6505	7658	9125	10142	13431
3217	4062	5195	6825	7813	9138	10480	
3382	4457	5313	6878	7997	9225	11100	
	4478	5328			9245	11517	
	4496	5400					
	4563	5468					
	4845	5788					

We are still very keen to learn more about this unknown mode, its purpose and locations. Any information/observations very much appreciated. For new readers Faders operate on a 1 minute cycle and have a 'glitch' every 7.5 seconds. They sound rather like a motor-bike engine. The reason they are called Faders is due to the peculiar habit of dropping to a lower level and then becoming loud again.

The 1 minute cycle is broken into eight - 7.5 second bursts.

Depending on the transmission in progress the signal performs any one of three distinct actions -

Carries on at full 'volume'	Readers with a very accurate clock will
Drops to a lower level	note that transmissions follow a clock
Stops and stays silent	cycle starting at 00.00 seconds.

Transmissions can restart at any time and so don't be fooled by periods of silence, stay on frequency or check another channel. Reception is particularly good in the late afternoons and evenings, when up to 8 transmitters may be operating at any one time.

Slowly sweeping 'faders' have long-operated on HF bands. Leave a receiver tuned for long enough on one channel and one of these will eventually materialise. They have a rough F.M. type sound, unlike the pulsed and pure carriers we usually associate with ionospheric sounders. Can anyone explain these ?

-----  
In the last issue we asked about 'Park Hill' and received a very detailed reply from Tim which is reproduced below.

The Parkhill series devices were developed in the 1960's, and phased in over the 60s & 70s for securing HF, VHF, & UHF SATCOM voice circuits, using a time-domain system that secures traffic up to Top-Secret, but allowed for the basic cadence of the secured voice traffic to be recognised. Parkhill also is not very good over noisy circuits with a lot of fading. One improvement allowed for diversity/non-diversity mode (easily distinguished by pre-amble length to monitors), yet the U.S. government was eager to phase out the Parkhill family of voice transmission-security devices with a more robust system.

Enter the Advanced, Narrowband Digital Voice Terminal (ANDVT). ANDVT is actually a misnomer, because in addition to processing and securing analogue voice, the system also is compatible with record-mode circuits.

Users consider ANDVT to be a tremendous improvement over Parkhill, particularly on HF. It also allowed for other TSEC (such as KY-58 'Vinson' family VHF/UHF crypto gear) systems to be removed, reducing weight and saving space on the aircraft and ships, as well as ground-mobile & fixed locations. cryptographic key management is streamlined with ANDVT, but there is one downside, the importance of which depends on some particulars involving voice-traffic.

ANDVT vocodes (digitizes) the analogue voice to digital voice using a codec that works well on narrowband (i.e. HF/SSB) circuits, this product then fed into a KY-99 encryption unit to secure the digital-voice, after which it is fed into the communications circuit (radio or telephone). The process is, of course, reversed on the receive side of the link. But the deciphered audio is a mechanical voice...you do not have voice recognition !

This is not a problem when the message (traffic) is the only factor, but there are plenty of times when the messenger is just as important. For example, the Air Force One Communications Systems operator can pass some sensitive frequencies to the CSO aboard NIGHTWATCH 01 via an HF ANDVT circuit without voice-recognition being a concern.

But if the President aboard AF1 wanted to speak with the Secretary of Defence aboard SAM973, an ANDVT/KY-99 circuit would usually be a poor choice because voice-recognition became an important factor !

On now to some station news.

THE PIP - No change, still active on 3757 kHz and 5450 kHz. It is often in the early hours of the morning on 5450.

One report from Germany tells me it 'pips' 65 times per minute. Not exactly GMT or UTC !

THE ECHO - This signal is lost to us at present, it was last noted under Radio France International on 3965 kHz. The Echo does however like to move about, but, because of its weak signal it can stay hidden under a stronger signal for some time. This station is not that dissimilar to 'The Buzzer' the only major difference is that of signal strength. A faster version of this signal has been heard on 3372 & 3380, once using FSK. - about 2 'pips' per second.

BACKWARD MUSIC STATION - Sorry, still no real news on this signal. Seems to have taken up residence on 6752/5 kHz. Also noted on 9223 kHz during daytime hours. When not sending an appalling noise it just sits making a low buzzing noise. Also likes 6695 6584 5178 & 3740. Ian, now at his new QTH, wrote " 5178: This has to be the backward music station - first time I have heard it. The aliens have landed ! "

THE CRACKLE - The only significant change is its ability to now obliterate Shannon Air Radio VOLMET on 5505 kHz. This seemingly pointless sound operates on 5500/5505 and recently turned up for a short spell on 5308 kHz. Other frequency noted have included 5350 6584 9148 9265 10270 & 12220 What is it ? Give it a listen. Good reception after dark.

THE BUZZ - Does nothing but buzz continually. Often heard on 3 frequencies in parallel. Try 5865 6695 7710 8980 9050 11230 ?

THE SWEEPING CARRIER - A new transmission reported last time around. Some feedback. Brian- "The Sweeping Carrier". This was exactly as described in ENIGMA, and a most unusual find. The only possible use I can imagine for it, would be to keep those frequencies clear for some reason. There appears to be no logical link between the frequencies chosen, neither does there seem to be any service using these frequencies".

Mike in Kent sent in some observations and mentions that it sometimes missed out 7680 kHz. Mike also says that the signal strength could also vary in just half an hour from S9+ to 'no sig' and applied equally to all frequencies but had no regular pattern, not deliberate, and wasn't selective fading. Mike also add that perhaps it is a slow speed version of the Ptarmigan VHF/UHF frequency hopping system.\*

This signal was last noted operating in October 1996 and has not been heard since.

(\*-Unlikely - Ptarmigan is a military voice communications spread spectrum system. This 'thing' however, carries no sign of voice intelligence.)

Your comments/observations most welcome.

The Czech Stations - continued from ENIGMA 8 by M.G.

First of all, M11, which is referred to in the previous article has now been deleted. It originated in the confusion of stray unaccounted-for M1s, and our understanding of M1's varied patterns and disguises has now much improved. M1 is not part of the Czech network. Also, due to inconsistent use of our designation numbers, S11 (2nd para. page 34) should read S17, our familiar daily 'control' station. S11 ("presta") has no Czech connections. Apologies for this.

Having cleared all that up, we can now look at the OLX family. OLX as we know it today was in operation by March 1992, and could well have begun on 1st January. This came after a major reorganisation of this network and its role. Its predecessors, M6A/S15, ended at around December 1990 possibly at the same time as S10. It shared several similarities to OLX but also had many differences. Like OLX it operated in both morse and voice and used a regular set of 3fig IDs. Its main differences were its more complex scheduling and the use of null message formats, which were much more frequent than actual messages. The present OLX is opaque as regards null messages - we don't know which of its messages are valid and which are dummies, making traffic analysis impossible. Group counts also tend to be generally longer on M6/S16.

M6A & S15 used no callsign, official or otherwise. It merely began with a string of rapid dots (ICW for M6A, MCW for S15) as a tuning signal, sent for 5 minutes prior to the 'broadcast', which started, unlike OLX, at any 5min interval of the hour. The 3fig ID, sent for the next 5min was selected from a fixed number of IDs, as with M6/S16, however, a number of arbitrary null message IDs were also used which always included a zero. These gave the listener warning that no message would follow - actually transmission cut off abruptly at the end of the call. They could also possibly have carried operational instructions within their make-up. In effect, all these IDs acted as both Schedule numbers and msg/no-msg indicators. An expected schedule number was replaced by a null message ID whenever necessary. Simon Mason was incorrect when he stated in his book, 'Secret Signals', that the "...recipient would have to endure....five minutes of brain-numbing 'dva tri osm', ad nauseum, only to be rewarded by a sudden departure!". Incidentally, the example given, 238, would have resulted in a message anyway, as it doesn't contain a zero!

Format followed present lines from then on, i.e. GC (once) - message of single 5f groups, "opakuji!" (Czech for "I repeat", not "Papaqui" as quoted by LP - there is no such word and no letter 'Q' in Czech) then a repeat of GC and msg, ending with "Konec" (pronounced quite conventionally in Czech as 'konets' in English phonetics and never written "Conet" - à la

Pierce!). Another very similar station, S5, the one referred to by LP, used the OLX call of today, used null message IDs, and sent the GC twice before each message. As no dates are given, it's not clear where this one fits in. LP implies that S5 ended in 1989, and in his example gives it as using a non-repeated GC. It is all very confusing! Due to Morsephobia prevalent among amateur numbers monitors at that time, M6A has been sadly neglected, and little information exists, however, it is likely that morse constituted about half of this network's transmissions, as is the case today. Then, it could well have used different freqs than its voice counterpart - 7413kHz being one of its regulars. Its format was very similar to today's M6, the OLX tuning signal being replaced by rapid dots, however. Its call consisted of the ID sent six times - as today - followed by = 011 or 012 and perhaps a few other variations on this theme, all this sent for 5mins. The meaning of this auxilliary 3fig group is uncertain. One theory reported was that it referred to number of messages, 011 meaning one msg to follow, 012 two msgs etc. If this is correct, it seems a long-winded way of doing it. Whatever its purpose, it persists today but only, it would seem, in the 011 form, clearly serving no purpose, a mere relict of times when it did. There are many similar cases of inertia in the numbers station sphere where parts of a system have outlived their purpose yet persist. Why? A lack of will to remove them or admit that they are redundant, or maybe even a nostalgic affection for a station's past glories. The fact that the voice arm of this network has never included this extra group is another anomaly; it may suggest that the morse and voice arms had different origins and maybe different roles also.

Scheduling and frequency use are the most significant changes which took place between the earlier and present forms of this network. Almost all S15 freqs reported were below 7MHz and were not used in parallel. They were: 3238 3380 3458 3465 4065 4104 (or 4014) 4160 4560 4790 5270 5770 5775 6780 8159 10180. This implies Europe-only coverage. Only one of these, 5775 was used by M6/S16 later than Jan 93. Although LP claims that it used many of these earlier freqs, he also includes six new freqs which were certainly solely in use by 1993. It is more likely that, from its inception, S16 adopted a whole new set of freqs along with its unique legitimate status. It is the only numbers station that carries an official ITU-registered callsign (excluding the dubious 4XZ, and DEA47 which was forced by embarrassment into doing so) - OLX - formerly allocated to Ceteka News Agency. It is the only such station which has the courtesy to reply to reception reports from listeners, and even has its own QSL card. (see cover of ENIGMA 6) On this card it lists its winter and summer freqs relevant at that time: 3239 3280 3333 4601 4757 5301 6280 6758 6865 6958 7577 8142 9353 10125 10307 11002 11416 11585 14977 15897 16046 18303 20865 22910.

This list implies worldwide coverage. Of these S16 has actually used: 3280 4601 5301 (5775 - not listed) 6280 6758 8142 11002 11416 14977 & 18303, at least since early 1993. (Two further freqs have been used since this list was compiled: 9320 & 12275). The omission of 5775 is significant for it is the only frequency which links it to the unregistered, and therefore internationally illegal rapid dots stations. In their unprecedented decision to legitimise a numbers station a whole new set of freqs (three to be used in parallel at any one time) was chosen as part of its new image and new post-Cold War role. The use of 5775 could have been a minor oversight and was quite short-lived.

M6/S16 scheduling is far simpler than its predecessors. Forty schedule numbers are used as IDs - 18 voice, 22 morse. These are allocated to 161 hourly time slots throughout the week (omitting 2300 - for transmitter maintenance?) Each number is used either three or four times a week and has its own regular time slots. All transmissions carry a message (GC 40-150) and rarely two, and there is no way for the uninitiated of telling which are valid. It is the busiest and most consistent of numbers stations.

Further notes on OLX, and the remaining Czech stations S17 and the elusive Czech Man (S18,S19) will be covered in a later issue.

\*\*\*\*\*

Many thanks to Andreas for his excellent material, much of which we hope to include in a proposed definitive book on numbers stations, of which none exist at present. ENIGMA Newsletter is primarily for reporting news and changes in the Numbers scene - a book would complement the NL by providing the increasing quantity of reference material needed to make full use of the news we provide. It would be invaluable both to newcomers and experienced monitors, as it would cover all aspects of a very complex little-known subject.

\*\*\*\*\*

HELP NEEDED

Any information on the 'Stay Behind Networks' ("Gladio" etc), which (we are told) disbanded in the early 1990s, would be much appreciated. The last Allied Co-ordinating Committee meeting took place on 23/24.10.90 where its reorganisation was discussed. The ACC was formerly known as the Clandestine Planning Committee, and before that as the Clandestine Committee of the Western European Union. Details of their radio communication networks and regular radio exercises is especially welcome. This has a bearing on the activities of certain numbers stations.

DZ -- inf rec'd 777/4

INSIDE THE UNBREAKABLE CODE - Submitted by Simon Mason.

The following first appeared in the Washington Post and highlights the career of the American cryptanalyst Meredith Knox Gardner, 85 this year.

Soviet spy chiefs thought they had devised an unbreakable code for communicating with agents in WWII. The system consisted of several layers, each of which had to be systematically "stripped away" by cryptanalysts :

Cover names concealed identities and places. For example, Lt Gen. Pavel Fitin, the head of foreign intelligence in Moscow, was code-named VIKTOR. Washington was known as CARTHAGE, Julius Rosenberg as ANTENNA (later changed to LIBERAL) and President Roosevelt as CAPTAIN. Soviet cipher clerks used a code book to translate a message into numbers, expressed in 4F groups. Using this system, the group 0956 represented VIKTOR, the group 1853 signified a full stop and so on.

In order to further disguise the codes, the Soviets added to them numbers from previously distributed cipher pads. A code clerk in New York took digits from the pad and added them to the code, without carrying numbers forward. If the next digits were 0359, for example, VIKTOR (0956) would become 0205. Each word in the cable was assigned its own cipher, so even if the word VIKTOR was repeated in a telegram, it would look different.

The code clerk in Moscow performed the same operation in reverse, using an identical cipher pad as the encoder. Had the Soviets consistently used each pad only once, the system would have been impregnable. In 1942, however, they began duplicating some of the pads, probably in order to accommodate a large increase in cable traffic. This turned out to be a fatal flaw that made the American code break possible.

In the autumn of 1943, an American cryptanalyst, Richard Halcock, found evidence of the use of duplicate key pads by searching through the cable traffic for repetition of the same number. A colleague, Cecil Phillips, made statistical observations that enabled the code breakers to break into the cipher system used by Soviet intelligence.

Halcock, Phillips and their colleagues eventually discovered 35,000 pages of duplicates in traffic between Moscow, New York, Washington, San Francisco, London, Montevideo and Canberra. By searching for repetitive phrases, American cryptanalysts were gradually able to "strip" away the cipher.

The key pads had been randomly distributed to Soviet intelligence, trade and diplomatic missions. So it was that the repetitive, fairly predictable nature of the trade messages that helped the cryptanalysts break into the intelligence messages.

Workers, mostly women recruited direct from civilian life, tested millions of different permutations with the help of IBM punch cards. Once the additive key had been stripped away, cryptolinguists like Gardner were able to slowly compile a Russian code book.

Gardner broke the special subcode for individual English letters which enabled him to read a list of scientists associated with the Manhattan project. The following year, he translated the first references to Julius and Ethel Rosenberg.



## Simon Mason Writes .....

Hello once again and welcome to another column. The main feature this time is a review of the "Shortwave Eavesdropper" CD-ROM from Interproducts. This product is mainly of use to general Utility monitors and an excellent tool it is.

As with most CD-ROM data bases, it has versatile search capabilities. You can search for callsigns, search between two frequencies, search for SRLCALS, ship's names and callsigns and so on. Of course, the searches can be restricted to certain criteria. For example, you can select a country and user to highlight certain number stations.

Select the U.K. and a series of different user types appear, one of which is the M.O.D.. Start the search and all the Piccolo 20 baud stations on the data base are listed.

Select the U.S.A. together with the C.I.A. and a long list of the 3/2F (E5) stations appear.

Alternatively, if you select Russia and all users in A.M. mode then a list of Russian operators, male and female, in English, German, Spanish and Russian are produced.

Another impressive feature is where you can simply enter a data mode and the most likely users are highlighted. Select Piccolo 20 baud and the British Army, Air Force, Navy and Diplomatic services are shown.

Some old callsigns are retained. For example, if you type in DFC37, the the CD-ROM comes up with the German Intelligence Service located in Pullach\* on 3370 kHz. HRP is listed solely as Switzerland, DEA47 as being GERMAN Intelligence again and interestingly, 8BY is recorded as belonging to a long list of daily tactical callsigns as used by N.A.T.O.+

The whole CD-ROM contains about 114 MB of data and by far the majority of this consists of sound files containing extracts of off-air recordings. The data modes first : By selecting "Audio guide to data modes", you can listen to quite a number of various sounds including;

RTTY, ARQ, FAX, FEC, Coquelet 8, Crowd 30, Piccolo idle and Piccolo traffic. There are even 3 types of voice scrambling methods included.

Of course, the most interesting part for number station fans are the recordings of Spy transmissions included, and, while these are a welcome addition, I felt a little disappointed that there were only 20. I realise the the CD-ROM is primarily a data base of utility frequencies and that anything else is a bonus, however, as stated previously, the CD-ROM contains 114 MB of data and a CD-ROM can hold well over 600MB, so there is ample room for many more recordings.

Indeed I have recently transferred recordings of my own which contain nearly 80 different stations, on to my hard drive. These take up about 70 MB of space, so I feel there was plenty of scope to add more than the 20 stations on offer.

(\*Transmitters not there. This is their H.Q. - Eds)

(+a clear piece of disinformation ! It's not a tactical callsign -Eds)

That said, there are one or two interesting stations on the CD-ROM. Here is a list of those included:

- 1) E5 YL/EE Counting Station
- 2) E3 Lincolnshire Poacher, tune and traffic
- 3) E10 Alpha Phonetic traffic & CIO2 Call-up
- 4) S2 Bugle Call-up
- 5) S21 Russian Lady
- 6) S6 Russian Man 00000
- 7) E6 English Man 00000
- 8) G16 2 Letter station using pre-1988 real YL voice
- 9) G16 Same as 8, but with different YL voice
- 10) G16 With rare "Lima Romeo" call sign
- 11) G13 5 Dashes station
- 12) S10 Czech Lady with 5 tones & traffic
- 13) V1 Skylark tune and OM with Romanian traffic

Finally, there are three very interesting recordings. Firstly, the S4 "Edna Sednitzer" station, which is quite a rare recording.

Then a portion of a broadcast by the S23 OM which uses the "Leopold, Ulrich, Ludwig" class of phonetic letters and finally an un-classified recording of a YL/EE who says 2 as tooo, a voice I have heard before, but can't quite place !

All in all then a very worthwhile CD-ROM data base to have, although it would have been better to have filled it up to nearer the 600 MB mark with lots of extra recording.

The "Shortwave Eavesdropper" CD-ROM cost £25.00, including U.K. post or airmail worldwide. Details from Interproducts, 8 Abbot Street, Perth, PH2 OBE, Scotland. ENIGMA has no connection with Interproducts.

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Next some news that the editor of the "Communications Confidential" column in the U.S. magazine, "Popular Communications", Don Schimmel has ended his long tenure, for reasons he explains here:

The January 1997 column will be my final column for Popular Communications magazine. I want to thank you for all of your past contributions of photographs, QSLs, loggings, information, etc., for use in the column. Your support was greatly appreciated.

Many CQ Communications, Inc., writers are owed significant sums of money for submitted columns and/or articles and delays in payment have been up to 6 months or more. Some of the CQ Communications, Inc., publications have been discontinued.

Four other column editors have also stopped writing for Popular Communications due to the late payment policy. With the monthly average for Popular Communications subscriptions going from 31,745 to 23,961 (1990-1995), a decrease of over 20%, it just seemed that the situation would not improve any time soon.

The one bright spot has been the pleasure I have had working with you. Perhaps SWL paths will cross again in the near future. I do plan to attend the Kulpville, PA, SWL Festival 13-15 March 1997 and hope to see some of you there.

I would like to thank Don for all his help during the last 10 years. All that time ago there were virtually no places where Number Station issues could be aired in an International forum and Don's column was a kind of meeting place for all monitors interested in the mystery.

Over the years, many monitors have come and gone but I would like to give a name check to all of the contributors I came to know through Don's column. They are Tom in Kansas, Reino in Joensuu Finland, David in South Korea, Akin in London, Tom Mazanec, Richard Baker, Kevin Tubbs, Ary in The Netherlands, Gary Hamlin, Tom Kneital, Dave White and the late Havana Moon.

Now onto some of my monitoring and station news, first the 2 Letter stations. There seems to be only two stations now still in operation. Golf Kilo in German (G16) and Mike Delta in English (E16).

Whisky Lima was last noted in January on SUN at 04.00 on 5770, more regular daytime transmissions have not however been heard since July 1996.

Here is a current (incomplete) schedule of the remaining 2 Letter stations.

Golf Kilo	HON	TUE	WED	THU	FRI	SAT	SUN
AUGUST	21.30 8063	21.30 8063		21.30 7858	21.30 8173		21.30 7404
SEPTEMBER	19.00 9040					20.30 6853	19.00 9040
OCTOBER	20.00 6853		21.00 5770	20.30 5732			
NOVEMBER	22.30 4821		22.00 5182		22.30 4543		20.30 4880
DECEMBER	22.30 4543	01.30 4543	21.00 4594		20.00 4594	21.30 4594	20.30 4888
			22.00 5284		22.30 4821	01.30 4594	22.30 3228
JANUARY	20.00 5015		21.00 4821				

Alpha Uniform in English has also been noted on 4888//4821 occasionally and is still active.

Mike Delta currently heard at 09.00 on either 12314 or 13775 and at 14.00 on 16414. Seems to be primarily Tuesday and Saturday.

Before leaving the subject of the 2 Letter stations, I noted in Popular Communications that a monitor in New York had sent in a logging of a German language 2 Letter station called "November Quebec" sending 5F groups at 12.00 on a previously unknown frequency, namely 15990 kHz. I have listened on this frequency on a near daily basis since reading the report but have not heard the station - perhaps this is one of those strange occasions when known European stations are sent from sites in the continental U.S.A. and therefore at certain times of the day are difficult to hear in Europe.

Now a look at some recent loggings, including a rare mistake from Swedish Rhapsody (G2).

First some unusual (E10) Alpha Phonetic strings noted recently.

4665	03.45 - 22.45	SYN-R	161800	Answers on a postcard
4665	22.45 - 03.45	SYN	7Z9180500	please !
4665	22.45 - 01.45	SYN	9180500	
6745	06.45 - 06.50	SYN-L	644P16	Please also see our
6745	18.45 - 18.50	SYN-P	406F554	feature on these message
6745	17.45 - 17.50	SYN-FF	36 B504T26	strings in this issue.
6745	21.45 - 21.50	SYN-L	381D504	

Station CIO2 was also heard using the unusual frequency of 6660 kHz for a while, but now seems to have settled on a new frequency of 5530 kHz, which is also used by the "Nancy Adam Susan" (E15) station at 20.00, luckily CIO transmits between 45-50 minutes after the hour, but it will be interesting to hear those rare occasions when CIO sends a message or string.

On 1 November at 19.20 a YL/GG (G7) was sending 764,764,764,1 then 6226/78 6226/78 and into 5F groups. Only trouble was...It was almost obliterated by "The Buzzer" on 4625 kHz.

A broadcast by the Swedish Rhapsody station was due on 27 November at 22.00 on 5340 kHz judging by the series of tone being sent 5 minutes before the hour. However at 22.00 the tones stopped and were followed by a German YL who said "Achtung" once at 22.01. At 22.03 the usual "Swedish Rhapsody" tune was sent for 5 minutes, followed at 22.08 by the usual YL with 3 headings and eventually into 5F groups.

To close, I heard and taped on Christmas Day at 20.45 an Alpha-Phonetic station YL (E10) repeating for 5 minutes on 6598 kHz ! To go with the unusual frequency, the YL was repeating "November Delta Papa - Victor" NDP-V. I have not heard anything since on this frequency. NDP is one of those occasional (E10) callsigns. \*

That's about all for now, until next time.

\* 6600/6598 has actually been quite active - see page 5